



**PHASE II ENVIRONMENTAL SITE ASSESSMENT
VACANT PARCELS (361-371)**

**CITY OF HAGERSTOWN
EPA BROWNFIELD PILOT PROJECT**

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Project No. 15290889**

JANUARY 2005

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1.0 INTRODUCTION

This document is the Phase II Environmental Site Assessment (ESA) of the property at 367 E. Franklin Street in Hagerstown, Washington County, Maryland (subject property). This document was prepared by URS Corporation (URS) under contract to the City of Hagerstown, Maryland as part of the City of Hagerstown Brownfields Pilot Project (URS Project Number 15290889).

The purpose of the Phase II ESA was to obtain the information necessary to evaluate environmental conditions identified during the Phase I ESA and assess any impacts to the site that pose hazards or risks to human health. If such risks/hazards were identified, the data collected could also be used to identify remedial alternatives and the associated costs of these alternatives.

2.0 PROPERTY DESCRIPTION

2.1 Property Location and Legal Description

The subject property is currently addressed as 367 E. Franklin Street, Hagerstown, Washington County Maryland. Note that this property is referred to as 361-371 on the City's Tax Map. The subject property is located immediately northwest of the intersection of Washington Street and Osborne Avenue and includes two parcels of land totaling approximately 2.08 acres. Both parcels consist of undeveloped vacant land, of which the southern-most parcel fronts Washington Street. The City of Hagerstown Tax Map Numbers for the two onsite parcels are 048-04-018; and 048-04-017. The subject property is located within the United States Geological Survey (USGS) Hagerstown, Maryland 7.5-minute topographic quadrangle with a position of 39.640281 degrees latitude and 77.712313 degrees longitude. A site location map is presented as Figure 2-1, and a site plan is provided as Figure 2-2.

2.2 Property and Vicinity Characteristics

The subject property and adjacent property to the east, south and west are zoned Commercial General (C2). With the exception of a residence located to the northwest of the subject property, the area is generally used for commercial purposes. The adjacent property to the north includes an approximately 40,000 square foot warehouse and parking lot, beyond which is zoned residential (R2) and includes single family homes. A detailed description of current adjacent property uses is provided in Section 4.0.

2.3 Site Description

The USGS Hagerstown, Maryland 7.5 minute topographic quadrangle (1953, photorevised 1985) indicates that the subject property has an elevation of approximately 520 feet above mean sea level (msl). The subject property appeared to be relatively level with the exception of an approximate five-foot depression on the south side of the subject property. Surface water runoff flows in a southerly direction from north to south across the vacant lots. URS observed no apparent surface water drainage from the onsite vacant lots. Surface water runoff in the general vicinity is likely to flow in a southerly direction and into Antietam Creek located approximately ½ mile south of the subject property. Topographic conditions indicate that areas generally within 2,000 feet north, 400 feet east, and 600 feet west are topographically upgradient of the subject property.

As illustrated on Figure 2-2, the subject property is bordered to the north by a warehouse building and parking lot, beyond which is E. Franklin Street and residential homes. Osborne Avenue borders the subject property to the east. On the opposite side of Osborne Avenue are warehouses occupied by Niner Awning Company and Commercial Intertech. The subject property is bound to the south by E. Washington Street. On the opposite side of E. Washington Street is Darner Memorials, which sells tombstones. The subject property is bound on the west by an access road to Morgan Motors, a small used car lot, located southwest of the subject property.

3.0 SITE HISTORY

Information concerning the history of the subject properties was obtained through the review of aerial photographs, interviews, city directories, Sanborn Fire Insurance Maps, and other sources.

3.1 Current and Prior Ownership

URS' review of a Chain of Title dating back to 1924 indicates that the subject property is currently owned by the Lawrence and Stanley Banks Realty Company which purchased the vacant parcels in 1995. With the exception of the ownership of portions of the subject property by the Robany Corporation from 1964 to 1966, and the City Hagerstown from 1955 to 1956; the subject property was owned by private individuals or their trustees. URS's review of the Chain of Title did not indicate prior uses that would be expected to create a Recognized Environmental Condition on the subject property.

3.2 Aerial Photograph Review

Historical aerial photography covering the site in 1938, 1952, 1958, 1963, 1967, 1970, 1975, 1987, and 1997 was reviewed monoscopically to identify potential sources of visible contamination at the time the photographs were taken.

In 1938, the subject property appeared to be a baseball field. No structures or indications of dumping were apparent on the subject property. Apparent residential structures were located north, east, and west of the subject property. Agricultural fields were present on the south side of the subject property and areas further to the south.

In 1952, the subject property consisted of vacant lots. A warehouse structure was present adjacent to the north of the subject property, and a residential type structure was adjacent to the northwest. A few miscellaneous objects were present on the east side of the adjacent warehouse building indicating likely loading or unloading activities. A small area of exposed soil was present outside the south side of the warehouse. Osborne Avenue was present adjacent to the east side of the subject property. On the opposite side

of Osborne Avenue was a rectangular commercial building. The adjacent property to the south appeared to be a vacant lot.

In 1958, the subject property appeared relatively the same as in the 1952 aerial photography. A residential trailer park was apparent adjacent to the southwest side of the subject property. An additional long rectangular building was constructed east of the subject property on the opposite side of Osborne Avenue. Otherwise the surrounding properties appeared relatively the same as in the 1952 aerial photography.

In 1963, the subject property appeared relatively the same as in the 1958 aerial photography. The vacant lots on the subject property included brush and small trees. Commercial buildings were located east of the subject property and residential land use was apparent north and west of the subject property.

In 1967 and 1970, the subject property and surrounding properties appeared relatively the same as in the 1963 aerial photography.

In 1975, the subject property was covered with small trees. The residential structure was no longer apparent adjacent to the northwest of the subject property. Otherwise the surrounding properties appeared relatively the same as previous years.

By 1987, an asphalt parking surface was added outside the western side of the warehouse adjacent to the north. The residential trailer park was no longer apparent southwest of the subject property and appeared to be replaced with two small commercial buildings. Two large commercial buildings were still present east of the subject property. Residential properties remained north and west of the subject property.

In 1997, the subject property and surrounding area appeared relatively the same as in the 1987 aerial photography.

In summary, URS's review of historical aerial photography covering the subject property dating back to 1938 indicated that the subject property was a baseball field prior to the construction of the warehouse adjacent to the north prior to 1952, after which, the subject property remained as undeveloped vacant land. The review of historical aerial

photography did not indicate signs of dumping or apparent indications of a Recognized Environmental Condition.

3.3 Review of Other Documents

URS reviewed the original Sanborn Fire Insurance Map dated 1926 with revisions in 1963, 1964, 1965, 1978, and 1980 as well as a 1926 Sanborn Map with revisions on microfiche. An undated or identified revision (prior to 1950) to the 1926 Sanborn Map on microfiche indicated the subject property was undeveloped. The map also indicated the current north adjacent warehouse structure and a small office building, identified as the David Goetz Silk Mill Factory Building. The original Sanborn Map with an undated or identified revision (suspected after 1950) indicated the current north adjacent warehouse structure as the Potomac Dyeing and Finishing Corporation. A small two-story dwelling was also identified in the northwest corner of the north adjacent property. A boiler room was identified in the northwest corner of the north adjacent warehouse with a note that fuel oil was used for heating. A fuel oil tank was not identified on the map. The historical use of fuel oil and the potential release of fuel oil previously used for the boiler could present a potential to create a Recognized Environmental Condition on the subject property.

Hagerstown City Directories

URS reviewed historical Polk Hagerstown City Directories for the years 1940-1941, 1945-1946, 1948, 1950, 1961, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1976, 1981, 1986, 1991, 1995, and 1998 to identify historical activities on the subject property.

No listings were identified for addresses of the subject property in the following directories 1940-1941, 1945-1946, 1948, 1975, 1976, 1977, 1978, 1981, 1983, 1984, 1985, 1990, 1991, 1995, and 1998. A review of historical directories indicated that the Potomac Dyeing and Finishing Corporation occupied the north adjacent warehouse (addressed as 367 E. Franklin Street) from 1950 to 1967. The company name was listed as Potomac Dyeing and Printing Corporation from 1968 to 1974. Industrial Plastics Corporation occupied the north adjacent warehouse in 1986.

Private individuals were identified in the residential structure (addressed as 361 E. Franklin Street) that was formerly located in the northwest corner of the north adjacent property in the 1950, 1966, and 1971 directories. The residential structure was identified as vacant in the 1961, 1972, 1973, 1974, 1975, 1976 and 1977 directories.

Hagerstown Light Department Accounts

The City of Hagerstown Department of Planning and Economic Development provided URS with historical tenant information for the warehouse property at 367 E. Franklin Street from accounts from the Hagerstown Light Department. URS' review of the accounts identified Industrial Plastics Corporation in 1983, Acoustiflex, Larstan Corporation and Mr. Lawrence Banks in 1986, and Certainteed Corporation in 1988.

Hagerstown Building Inspectors Files

The City of Hagerstown Department of Planning and Economic Development provided URS with notes from historical building inspector files for construction permits on the subject and adjacent properties. URS' review of the notes from the building inspectors file indicated the following owners or tenants on the subject and adjacent properties: Mr. David Goetz (constructed the north adjacent warehouse in 1947); Acoustiflex in 1979 and 1980; Industrial Plastics Corporation in 1983; a property transfer from Mr. Max Glazer and Mr. L.R. Geigerich to Lawrence and Stanley Banks Realty Company in 1986; and, the Banks Brothers in 1995, 1996 and 1998.

4.0 CURRENT AND PAST USES OF ADJOINING PROPERTIES

A review of aerial photography dating back to 1938 indicated that the adjacent properties to the north, south and northwest have been predominately residential, and areas to the east have been predominately commercial.

URS reviewed the original Sanborn Fire Insurance Map dated 1926 with revisions in 1963, 1964, 1965, 1978, and 1980 at the Washington County Free Library in Hagerstown, Maryland. The review of the historical Sanborn Fire Insurance Map indicated that

commercial businesses have been located east of the subject property. The Sanborn maps indicated that a candy warehouse and a garment factory were located to the east on the opposite side of Osborne Avenue. Mr. Lawrence Banks, owner of the subject property, stated that Fairchild Aviation occupied a property east of the subject property (435 East Franklin Street) in the 1940s. Mr. Banks stated that the subject property was used for storage of materials by Fairchild during that period. Mr. Banks stated that the main facility used by Fairchild Aviation was in the warehouse east of the subject property and that he knew of no prior activities on the subject property by Fairchild Aviation, other than storage of unknown materials.

5.0 SUMMARY OF PHASE II FIELD INVESTIGATION

This section presents a summary of the field investigation performed at the Vacant Lot site. The field investigation was performed in accordance with the procedures and protocols presented in the QAPP (URS, 2003). Deviations from the QAPP are noted in the following sections.

5.1 Overview of Decision Statements

As presented in the QAPP and prior sections, historical use of the site for unspecified storage, coupled with the presence of miscellaneous debris at the site, indicates the potential for soils to be impacted by a variety of materials. In order to evaluate if the soils are contaminated, and to evaluate potential environmental liabilities associated with such contamination, information is needed to answer the following questions:

Did the former materials storage impact site soils?

Is the debris present a hazardous waste?

What is the nature and extent of the contamination, if present?

Does the contamination, if present, exceed regulatory criteria?

What are the potential alternatives and costs associated with remediating contaminated soils and/or groundwater, if they pose a threat?

What are the costs associated with the removal of the debris if it is hazardous?

Owing to the uncertainty associated with the use of the site for materials storage, and the potential presence of USTs at adjacent properties, it is possible that groundwater may be impacted at the site. In order to evaluate if the site is a source of groundwater contamination or if releases from adjacent properties have migrated onto the site that may pose environmental liabilities, information is needed to answer the following questions:

Does groundwater contamination exist at the site?

What is the source of groundwater contamination, if present?

What is the nature and extent of the contamination, if present?

Does contamination, if present, exceed regulatory criteria?

What are the potential alternatives and costs associated with remediating groundwater, if it poses a threat?

In order to resolve the various decision statements developed for the vacant parcels, the following information is needed:

Groundwater samples need to be collected and analyzed for a variety of contaminants (i.e., VOCs, SVOCs, and metals) that offer the greatest potential to have impacted groundwater, using methods capable of achieving detection limits that are below MDE screening levels/EPA Region III RBCs and/or Federal Maximum Contaminant levels (MCLs).

Groundwater flow directions need to be determined to evaluate potential contaminant migration (if present) and the source(s) of any contamination present.

Shallow soil samples need to be collected and analyzed for contaminants that persist in the environment (i.e., SVOCs, PCBs, and metals) to determine if soils were impacted by former storage on the property or by the debris currently present at the site at concentrations that exceed MDE screening levels/EPA Region III risk based concentrations.

The debris materials need to be inspected to evaluate if potentially hazardous materials are present.

If the inspection of the debris material reveals that material may be hazardous, samples should be collected to evaluate if the materials are RCRA hazardous wastes to help evaluate disposal options.

The sample results need to be compared to regulatory criteria (see summary tables in Appendix C)

The purpose of the field investigation outlined in the QAPP was to provide the data necessary to answer these questions. The following sections provide a summary of the field activities.

5.2 Monitoring Well Drilling, Installation and Development

Monitoring wells were drilled using air rotary drilling equipment, and installed on September 10 and 11, 2003. A total of three borings were drilled for the purpose of installing monitoring wells at locations illustrated on Figure 5-1. Lithologic logs of these borings are presented in Appendix A along with the completion reports. A summary of the well construction data is provided in Table 5-1. The boring for monitoring well VMW-3 did not encounter any fractures or water, and after allowing the borehole to remain open for a period of 24 hours to see if water would enter the boring, the boring was abandoned by grouting to the ground surface. Following installation of monitoring wells at VMW-1 and VMW-2, the wells were developed in accordance with the QAPP.

5.3 Groundwater Sampling and Analysis

Groundwater sampling was performed using low flow purging and sampling techniques as detailed in the QAPP. The two new wells (VMW-1 and VMW-2) were sampled on October 16, 2003, following a minimum of 14 days after the wells were developed.

Prior to sampling these wells, water levels were obtained from the top of the PVC casing, and an interface probe used to evaluate if free-product was present. No free-product was encountered. Copies of the groundwater sampling records are presented in Appendix B, and Table 5-2 presents a summary of the chemical analyses performed.

5.4 Soil Sampling and Analysis

As detailed in the QAPP, the soil sampling program was based on the historic use of the warehouse to the north as a dye and finishing plant and an industrial plastics company, the potential exists that the materials stored may have released contaminants onto site soils. Therefore, a stratified-random soil sampling program was proposed to evaluate if residual contamination exists in the shallow soils (see Figure 5-1).

Due to the absence of historical data for the site, the assumptions used in the development of quantitative DQOs are necessarily very general and represent gross estimates. Thus, the outputs of the DQO development process, specifically the number of samples required, are likewise gross estimates. Based on the range of the outputs and application of economic reason, the number of soil samples was set at twelve, such that nine of the samples were collected randomly from areas relatively close to the warehouse building (presumed source of any unregulated disposal activities), and three samples were randomly collected from the remaining portions of the site.

The soil-sampling program was based on development of a two-tiered grid across the site that is randomly sampled. As shown in Figure 5-1, the grid system was constructed such that the area closest to the building was more tightly constructed than the remaining area of the parcels. The number of soil samples in the parcel closest to the building was, therefore, greater than the adjacent parcel to the south. Samples were collected from the surface soils between 0 and 6 inches in depth. Analytical parameters included for analysis

were limited to those most likely to be persistent in the environment. These included PPL metals, TCL SVOCs, and PCBs. Volatile organics were not included as they are not persistent in shallow soils. Table 5-3 presents a summary of the chemical analyses performed.

5.5 Debris Pile Sampling and Analysis

Based on the inspection performed during the Phase II ESA, the debris piles did not appear to contain hazardous materials, but rather were comprised primarily of concrete and asphalt rubble. However the actual content of the materials was not known; therefore, one sample was collected that was representative of the majority of the materials in the debris piles to evaluate if the materials pose a health risk. This sample was analyzed for TCL VOCs (with TIC scan), TCL SVOCs (with TIC scan), PCBs and PPL metals. Table 5-4 presents a summary of the chemical analyses performed.

5.6 Data Validation

The analytical data collected during the field investigation was validated in accordance with the QAPP. Analytical data summary tables are presented in Appendix C. Appendix D presents the complete analytical data from the fixed laboratory along with the data validation reports.

6.0 **GEOLOGY/HYDROGEOLOGY**

6.1 Regional Geology

The city of Hagerstown is located in the Hagerstown Valley, part of the Ridge and Valley Physiographic Province of western Maryland. The Ridge and Valley Province is an area of strongly folded and faulted sedimentary strata. Common lithologies in the Ridge and Valley Physiographic Province include shale, siltstone, dolomite, and limestone. The rocks underlying the city of Hagerstown are primarily Cambrian and Ordovician carbonates, meaning that they contain mostly carbonate minerals (calcite, dolomite, limestone). Groundwater in the area commonly occurs primarily under unconfined conditions between 5 and 20 feet below surface grade. The carbonate content of the regional rock formations

makes them relatively soluble in the presence of groundwater. For this reason, karst topography is present throughout many areas of the Ridge and Valley Physiographic Province. Carbonate rock aquifers exhibit a wide range of hydrogeologic conditions depending primarily on rock chemistry, geologic structure (bedding planes, fractures, etc.) and groundwater characteristics. Mildly acidic groundwater (groundwater not containing dissolved calcite or dolomite minerals) will readily dissolve carbonate rock.

6.2 Site Geology/Hydrogeology

Based on the geologic map of Washington County, the Vacant Parcels are underlain by the Conococheague Limestone. This dark blue gray laminated siliceous to argillaceous limestone has some thin shale interbeds. Pink recrystallized limestone and light gray limestone occur in the upper part of the unit, and massive to laminated dolomite is common in the lower and middle parts. Some localities also have Algal limestone, flat pebble conglomerate, massive beds of oolitic limestone and sandy dolomite or sandstone associated with this unit. Because this site is located close to the contact between the Conococheague limestone and the Stonehenge limestone the rock at the site may exhibit characteristics of both the upper part of the Conococheague and the lower part of the Stonehenge.

Based on the drilling logs from the September 2003 site investigation, the thickness of the unconsolidated soils above bedrock varies from 6-21 feet below surface grade. Based on topographic elevation data and depth to water data collected from the two new monitoring wells (VMW-1 and VMW-2), the general direction of groundwater flow cannot be determined at this time. Due to existing site conditions (debris, vegetation, etc.) VMW-2 was installed on an earthen berm in the southwest corner of the property. The surface elevation of the berm was approximately ten feet higher in than the surface elevation of VMW-1. Perched water was encountered at VMW-2 approximately 13 feet below the top of the well casing or at approximately 508 feet above mean sea level. The ground water detected at VMW-1 was approximately 16 feet below the top of the well casing or 494 feet above mean sea level.

7.0 NATURE AND EXTENT OF CONTAMINATION

7.1 Soil

Twelve soil samples and one duplicate sample (VAC-1D) were collected during the investigation of the vacant parcels. Summary tables presenting the soil data are included in Appendix C. The complete analytical reports from the fixed laboratory along with the data validation reports are included in Appendix D.

Low concentrations of semi-volatile compounds, most at estimated ("J" flagged) concentrations below the analytical method's reporting limits were detected in every soil sample collected. The concentrations detected are consistent with the levels typically present in an urban environment, which are documented to range from 0.06 to 5.8 mg/kg for total PAHs (Menzie, 1992). Of the PAHs detected, only benzo(a)pyrene at sampling locations VAC -3 and VAC-7 exceeded both the EPA and MDE screening criteria. Based on a review of the soil data, the distribution of PAHs did not appear indicative of a release or spill, and given the concentrations detected, it is considered more likely that the PAHs are present as a result of anthropogenic sources, typical of an urban environment.

All twelve soil sample locations indicated concentrations of metals (primarily arsenic and mercury) above the MDE or EPA RBC screening criteria. However, all but one of the arsenic values were within the range of typical metals concentrations, indicating that the arsenic is most likely present naturally as opposed to being present as a result of a release. Even the one sample (VAC-5) that was greater than its anticipated typical concentration (32 mg/kg versus a maximum typical concentration of 27 mg/kg) may be a result of small variations in the natural concentration of arsenic as opposed to being indicative of site contamination.

All of the reported concentrations of mercury, although above screening criteria, were considered by the laboratory to be tentatively identified and were "N" flagged. The data validation effort confirmed this situation, and the data were consequently flagged "J" meaning that while the analyte was present, the reported value may not be accurate or

precise. Based on the observations that the concentrations of mercury appear to be similar across the site, there was no observed “hot spot” or area where mercury concentrations were higher than other locations on the site, it is concluded that it is unlikely that mercury in the site soils is a site-related contaminant.

None of the other metals detected are considered site related contaminants of concern because they either did not exceed the anticipated typical metal concentrations (i.e., natural levels) or they did not exceed health based screening criteria.

None of the soil samples indicated concentrations of PCBs above the MDE or EPA RBC screening criteria.

7.2 Groundwater

Groundwater sampling was performed using low flow purging and sampling techniques as detailed in the QAPP. Two groundwater samples and one duplicate sample (VAC-2D) were collected from the two new monitoring wells (VMW-1 and VMW-2) on October 16, 2003. Prior to sampling, the wells were gauged with an oil/water interface probe to determine the depth to groundwater and if free-product was present. No free-product was encountered.

One groundwater sample collected from VMW-1 indicated one semi-volatile compound (2,6-dinitrotoluene—2,6-DNT) above the maximum contaminant levels (MCL), MDE or EPA RBC screening criteria. 2,6-DNT was detected at a concentration of 32 ug/l in this well. 2,6-DNT is typically associated with 2,4-DNT, and these two chemicals are generally produced as a mixture called Tg-DNT which contains 76.5% 2,4-DNT and 18.8% DNT (ATSDR, 1998). DNT is a chemical intermediate in the production of toluene diisocyanate, a precursor to polyurethane polymers, and in the production of the explosive trinitrotoluene (TNT), and in the production of dyes (ATSDR, 1998).

The detection of 2,6-DNT is somewhat problematic in that 2,4-DNT was not detected, although it typically comprises a larger percentage of Tg-DNT. Furthermore, if 2,6-DNT is

present as a result of former releases associated with either the subject property or the warehouse to the north which reportedly once housed dyeing and printing operations (Potomac Dyeing and Finishing) and a plastics company (both potential users of chemicals that may have 2,6-DNT), it is reasonable to expect other associated contaminants to be present as well, and no other VOCs or SVOCs were detected at concentrations above their reporting limits.

Although there is uncertainty as to the actual presence or absence of 2,6-DNT, it is listed as a potential site-related contaminant in order to be conservative regarding the protection of human health and the environment.

All three ground water samples indicated concentrations of total metals above the MCL, MDE or EPA RBC screening criteria. As expected, the total (i.e., unfiltered) metals concentrations were found to be higher than the dissolved concentrations, indicative of the effect of suspended solids in the samples collected for total analyses. Only three metals, antimony (all three samples), arsenic (all three samples), and selenium (one sample) were detected at dissolved concentrations above the screening criteria. The concentration of dissolved antimony detected in all three samples was not substantially above the level reported in the laboratory method blank, indicating that it is unlikely to be present as a result of site contamination. Similarly, the concentration of arsenic reported in the sample and duplicate sample from well VMW-2 were not substantially above the level detected in the laboratory method blank, meaning that only the concentration of arsenic (9.2 ug/l) in well VMW-1 appears to be indicative of actual dissolved arsenic in the groundwater at the site. Selenium was detected in the duplicate sample from well VMW-2 at a concentration above its screening criterion (5.2 ug/l versus 5.0 ug/l), but was below this level in the original sample (4.9 ug/l versus 5.0 ug/l).

Based on the location and concentrations of dissolved metals detected, there does not appear to be a discernable pattern indicative of a plume of metals contamination in the groundwater.

Copies of the groundwater sampling field data are presented in Appendix B.

Summary tables presenting the analytical data are included in Appendix C. The complete analytical reports from the fixed laboratory and data validation reports are included in Appendix D.

7.3 Debris Piles

Based on the inspection performed during the Phase II ESA, the debris piles did not appear to contain hazardous materials. Therefore, rather than collecting a sample for TCLP testing, one sample was collected to evaluate if the materials within the debris piles posed a health risk. This sample was analyzed for TCL VOCs (with TIC scan), TCL SVOCs (with TIC scan), PCBs and PPL metals.

The only analyte that was detected above any of the screening criteria was arsenic, which was detected in the sample at a concentration (18 mg/kg). This concentration exceeded both the MDE and EPA screening criteria. However, based on a comparison of this concentration to the anticipated typical concentration of arsenic (i.e., natural/background concentration) it appears as though the concentration in the debris pile is similar to background, and is also similar to concentrations detected in site soils (see Section 7.1). Given these similarities, the concentration of arsenic detected in the debris pile does not appear indicative of site contamination.

A summary of the analytical data is included in Appendix C. The complete analytical reports from the fixed laboratory and the data validation reports are included in Appendix D.

8.0 **RISK ASSESSMENT**

One of the purposes of the Phase II ESA was to obtain information necessary to evaluate environmental conditions and assess impacts to the site that pose hazards or risks to human health and the environment, and this section provides a qualitative assessment of those potential risks.

8.1 Soils/Debris Pile

Based on the data obtained during the Phase II ESA, while several analytes (notably PAHs and metals) were detected at concentrations that exceeded their respective screening criteria, these constituents are not considered contaminants of concern because they appear to be present at the site at concentrations indicative of either anthropogenic or naturally occurring levels as opposed to site contamination. Therefore, the soils do not appear to pose risks to human health or the environment as a result of site contamination.

Similarly, no contaminants of concern were identified at the debris pile, and these materials do not appear to pose a risk to human health or the environment.

8.2 Groundwater

Based on topographic elevation data and perched groundwater at VMW-2, the general direction of groundwater flow cannot be determined at this time. Based on the analysis of the groundwater data in Section 7.2, the one potential site-related contaminant in groundwater was 2,6-DNT. This analyte was only detected in one well, and the absence of other analytes that would be expected to be present if a release was present (i.e., 2,4-DNT, and possibly other chemicals as well), provides uncertainty to whether or not this analyte is actually present at the site. Regardless, for the purposes of this report, it is assumed that 2,6-DNT is a contaminant of concern in groundwater.

Although metals were dismissed as site-related contaminants in Section 7.2, it should be noted that although the concentrations of dissolved antimony, arsenic, and selenium exceeded at least one of the screening criteria, none of these dissolved analytes were detected at concentrations that exceeded their respective Maximum Contaminant Level which is the regulatory standard that needs to be met for a public water supply system. Given this condition, the presence of dissolved metals does not

appear to pose an unacceptable risk to human health even if the water was used as a potable water supply.

The nearest body of surface water is Antietam Creek located approximately 1,500 feet south of the site. Based on this information ecological exposure to animal or plant life is unlikely, and the presence of 2,6-DNT in the groundwater does not pose a risk to ecological receptors.

The depth to ground-water ranges from 13 to 17 feet below surface grade, therefore, human exposure to 2,6-DNT via inhalation, ingestion or dermal contact is unlikely. Based on the depth to ground-water of 13 to 17 feet below surface grade, adverse affects to utilities or the potential for migration of contamination along utility backfills are unlikely. Typical utility depths are five feet or less below surface grade. No other sensitive receptors such as surface water, historic structures, or subways were identified during the investigation that may warrant further investigation or corrective action.

The site and surrounding area are served by municipal drinking water services and no drinking water supply wells have been identified in the immediate area. Therefore, the presence of 2,6-DNT in the groundwater does not pose a risk under the current land use of the site and the area. If the current property owner were ever to sell the property, a land use restriction may be necessary to restrict future property owners from utilizing groundwater as a drinking water source, as 2,6-DNT (if actually present), could pose a risk to human health if the groundwater is ingested.

9.0 REMEDIAL ALTERNATIVES AND COSTS

9.1 Soil/Debris Piles

As discussed in Section 8.0, soils and the debris pile do not appear to be impacted by site-related contaminants. Therefore, no remedial action is proposed to address either

site soils or the debris. Should the current owner or future user desire to develop the parcel, it may be necessary to remove the debris pile as it contains concrete and other materials. However, this action is more of a “housekeeping” effort as opposed to an action to mitigate environmental concerns. Although the exact quantity of debris is unknown, it is estimated that no more than ten 30 yard roll-off containers (each filled to 50% to prevent the weight of the concrete from exceeding the weigh restrictions of such trucks) would be needed to remove the debris. At a cost of approximately \$400/rolloff container, and two days of a excavator and operator to load the containers at \$400/day, the costs to dispose the debris as non-hazardous construction debris is estimated to be approximately \$5,000.

9.2 Groundwater

As discussed in Section 7.2, it is uncertain as to whether or not the detection of 2,6-DNT is representative of actual site contamination in the groundwater. Furthermore, as discussed in Section 8.2, because there are no complete exposure pathways, if 2,6-DNT is actually present, it does not pose a current threat to human health or the environment. However, to provide a conservative approach to address the presence of this analyte, two remediation alternatives are evaluated.

The first alternative consists of the use of monitored natural attenuation to address this analyte. 2,6-DNT has been demonstrated to be degraded by microorganisms in the subsurface (Bradley, et. al., 1997), and given the absence of a complete exposure pathway, this approach should be protective of human health and the environment. This remediation approach would require the installation of least three additional wells to fully define the extent of the 2,6-DNT, and monitoring of the two existing wells and three newer wells for a period estimated at ten years. Assuming each well is sampled annually, the estimated cost for this remediation approach is approximately \$45,000.

Another remediation approach would be to install a groundwater recovery and treatment system (using activated carbon) to withdrawal and treat the impacted groundwater. This approach would also require the installation of at least three additional monitoring wells to fully define the extent of the 2,6-DNT, and it is assumed that two

recovery wells will be needed to adequately capture the impacted groundwater. Based on this conceptual approach, and operation of the system for a five (5) year period, the estimated cost (including permitting, system construction, weekly system inspections/operation and maintenance, and the required monitoring and reporting) is approximately \$300,000.

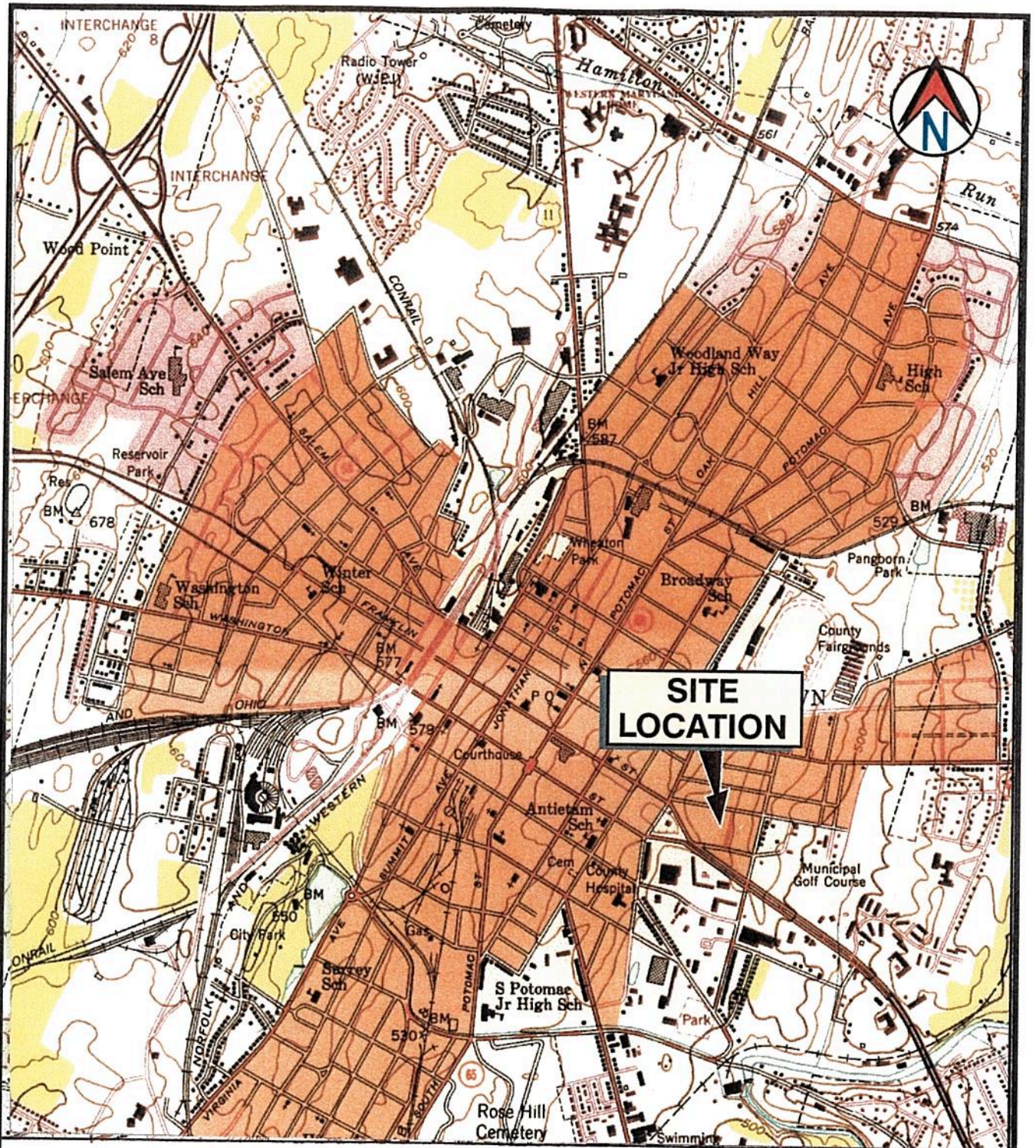
10.0 REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR), 1998. Toxicological Profile for 2,4- and 2,6-Dinitrotoluene.

Bradley, P.M., F.H. Chappelle, J.E. Landmeyer, and J.G. Schumacher, 1997. "Potential for Intrinsic Bioremediation of a DNT-Contaminated Aquifer," published in Ground Water, Vol. 35, No. 1, pages 12 – 17, January – February 1997..

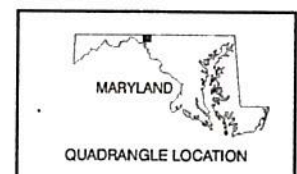
Menzie C.A., B.B. Potocki, and J. Santodonato, 1992. "Exposure to Carcinogenic PAHs in the Environment," published in Environmental Science and Technology, Vol. 26, pages 1278-1284, 1992.

FIGURES

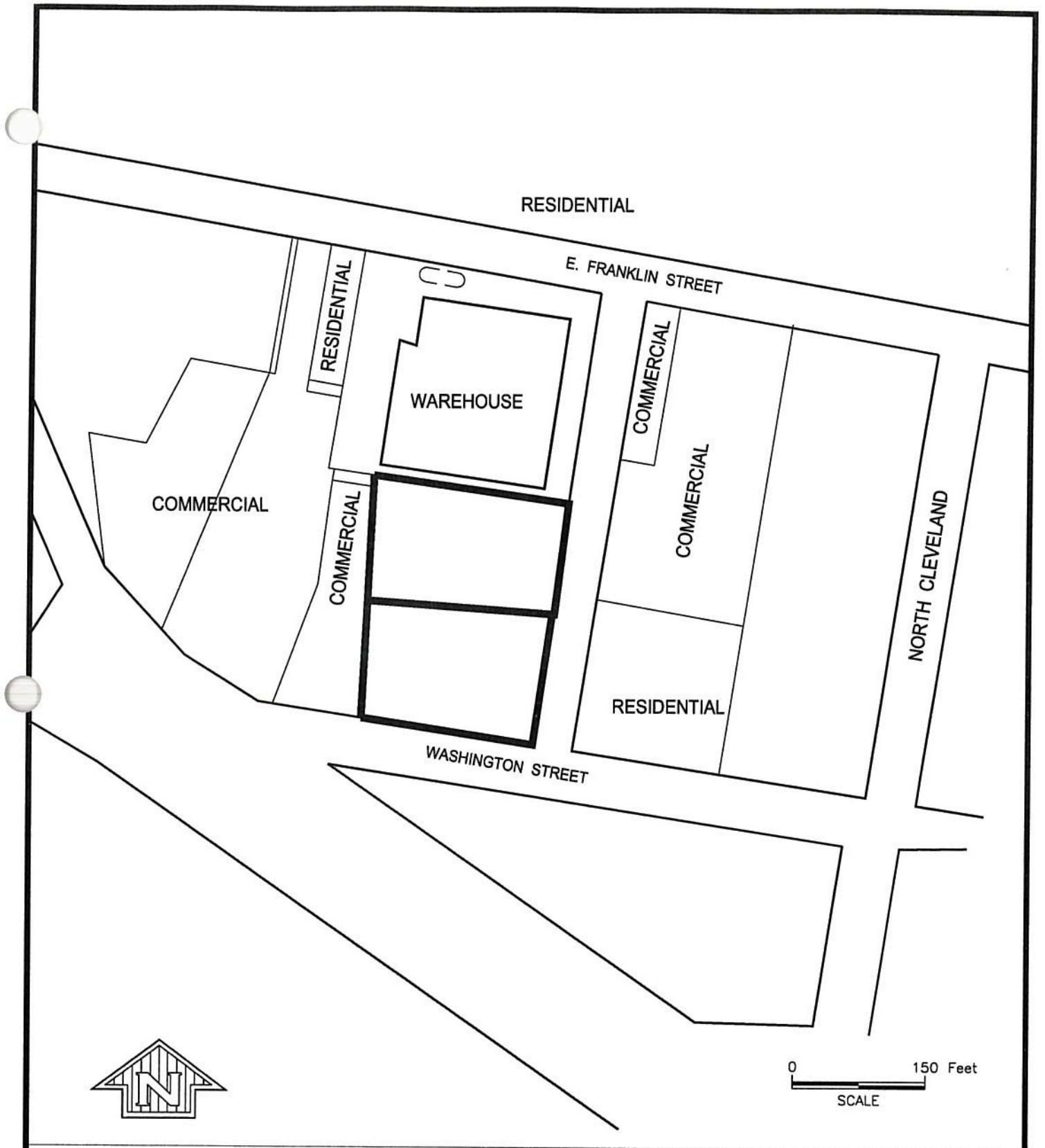


0 2000 Feet
SCALE

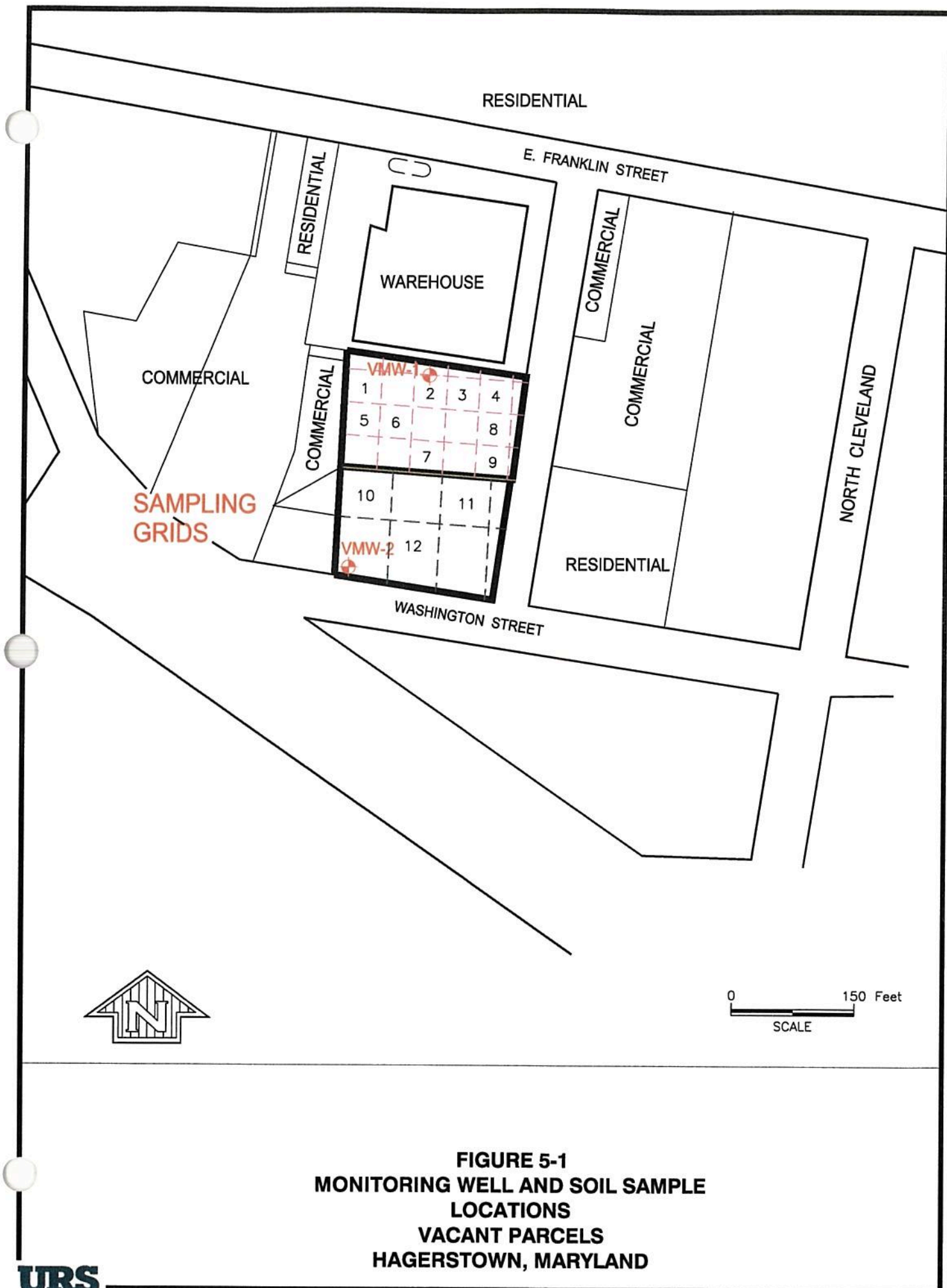
SOURCE: U.S.G.S. 7.5' Series quad.: Hagerstown, MD 1953, photorevised 1985.



**FIGURE 2-1
SITE LOCATION MAP
VACANT LOT
HAGERSTOWN, MARYLAND**



**FIGURE 2-2
SITE PLAN
VACANT PARCELS
HAGERSTOWN, MARYLAND**



TABLES

Table 5-1
Summary of Monitoring Well Data

Monitoring Wells--Vacant Lot

Well ID	Boring Depth (feet)	Boring Diameter (inches)	Depth of Well (feet bgs)	Screened Interval (feet)	Approx. Elevation (msl)	Depth to Water (toc)
VMW-1	48	3	48	48-38	510	16.06
VMW-2	15	3	15	15-10	521	13.18
VMW-3	55	3	NC	NC	--	NC

Notes:

NC = Not completed--Well VMW-3 was not installed as the boring was dry.

bgs = Below ground surface

toc = feet below top of PVC casing

Table 5-2
Summary of Groundwater Sample Analyses

Groundwater Samples--Vacant Lot

Sample ID	VOC w/ TIC Scan	SVOC w/ TIC Scan	PP Metals Total	PP Metals Soluble
VMW-1	x	x	x	x
VMW-2	x	x	x	x
VMW-2D	x	x	x	x

Table 5-3
Summary of Soil Sample Analyses

Soil Samples--Vacant Lot

Sample ID	TCL SVOC w/ TIC Scan	TCL VOC w/ TIC Scan	TCL SVOC	PP Metals	PCBs
VAC-1			x	x	x
VAC-1D			x	x	x
VAC-2			x	x	x
VAC-3			x	x	x
VAC-4			x	x	x
VAC-5			x	x	x
VAC-6			x	x	x
VAC-7			x	x	x
VAC-8			x	x	x
VAC-9			x	x	x
VAC-10			x	x	x
VAC-11			x	x	x
VAC-12			x	x	x

Table 5-4
Summary of Debris Pile Sample Analyses

Debris Pile Sample--Vacant Lot

Sample ID	VOC w/ TIC Scan	SVOC w/ TIC Scan	PP Metals Total	PCBs
Debris Pile	x	x	x	x

APPENDIX A

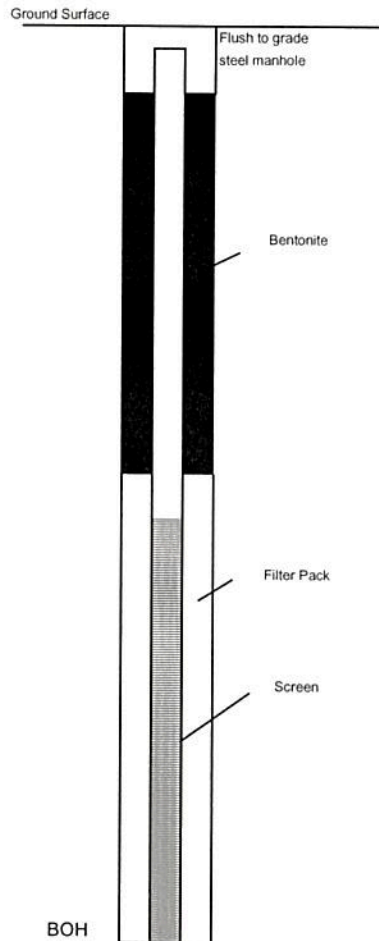
BORING LOGS, WELL INSTALLATION DIAGRAMS

BORING LOG		DISTRICT		HOLE NUMBER VMW-1	
1. COMPANY NAME URS Corporation		2. DRILL SUBCONTRACTOR Connelly and Associates		SHEET SHEETS 1 OF 2	
3. PROJECT Vacant Lot Phase II ESA		4. LOCATION 367 E. Franklin Street, Hagerstown, MD			
5. NAME OF DRILLER Ray Biddinger		6. MANUFACTURER'S DESIGNATION OF DRILL CME 55			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION			
3.25" Hollow Stem Auger		9. SURFACE ELEVATION			
3.25" Air Hammer					
		10. DATE STARTED 9/10/2003		11. DATE COMPLETED 9/10/2003	
12. OVERBURDEN THICKNESS 6'		15. DEPTH GROUNDWATER ENCOUNTERED 40'			
13. DEPTH DRILLED INTO ROCK 42'		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED 16.06' 36 Days			
14. TOTAL DEPTH OF HOLE 48'		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES					
20. SAMPLES FOR CHEMICAL ANALYSIS		VOCS		METALS	
		OTHER (SPECIFY)		OTHER (SPECIFY)	
21. TOTAL CORE RECOVERY%					
22. DISPOSITION OF HOLE		BACKFILLED		MONITORING WELL XXXXXXX	
		OTHER (SPECIFY)		23. SIGNATURE OF INSPECTOR	
LOCATION SKETCH/COMMENTS		SCALE:			
PROJECT Vacant Lot Phase II ESA				HOLE NO. VMW-1	

BORING LOG							HOLE NUMBER
(CONTINUATION SHEET)							VMW-1
PROJECT				INSPECTOR			SHEET SHEETS
Vacant Lot Phase II ESA							2 of 2
ELEV.	DEPTH	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNT	REMARKS
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	0	Silty CLAY, Trace fine grained sand					
	1 0						
	2 0	BEDROCK					
	3 0						
	4 0						
	5 0						
	6 0						
PROJECT							HOLE NUMBER
Vacant Lot Phase II							VMW-1

AS BUILT MONITORING WELL RECORD

HOLE NUMBER: VMW-1	LOCATION: 367 E. Franklin Street, Hagerstown, Maryland	DRILLER: Connelly and Associates
PROJECT: Vacant Lot Phase II	ELEVATIONS (FT MSL)	Depth to GW (FT): 40'
DATE WELL COMPLETED: September 10, 2003	SURFACE:	NA
DATE DEVELOPMENT COMP: September 11, 2003	TOP OF PVC CASING:	NA
INSPECTOR	TOP OF OUTER CASING:	NA
		DRILLING METHOD: Hollow stem auger with air hammer
		DEVELOPMENT METHOD:



COORDINATES (Approximate): NORTH: NA
EAST: NA

STICK UP TO TOP OF PROTECT CASING: NA
STICK UP TO TOP OF RISER PIPE: NA

I.D. OF PROTECTIVE CASING: Flush to grade steel manhole
TYPE OF PROTECTIVE CASING: Flush to grade steel manhole

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: Sch. 40 PVC

TYPE OF GROUT: NA

DEPTH TO TOP OF SEAL: Surface
TYPE OF SEAL: Bentonite

DEPTH TO TOP OF FILTER PACK: 36'
TYPE OF FILTER PACK: #2 Morie

DEPTH TO TOP OF SCREEN: 38'
TYPE OF SCREEN: Sch. 40 PVC
SLOT SIZE AND LENGTH: 0.020" Slot
I.D. OF SCREEN: 2"

DEPTH TO BOTTOM OF SCREEN: 48'
BOREHOLE DIAMETER: 3.25"

BOTTOM OF HOLE: 48'



PROJECT: Vacant Lot Phase II USACE - Baltimore District
HOLE NO.: VMW-1

BORING LOG		DISTRICT		HOLE NUMBER VMW-2	
1. COMPANY NAME URS Corporation		2. DRILL SUBCONTRACTOR Connelly and Associates		SHEET SHEETS 1 OF 2	
3. PROJECT Vacant Lot Phase II ESA		4. LOCATION 367 E. Franklin Street, Hagerstown, MD			
5. NAME OF DRILLER Ray Biddinger		6. MANUFACTURER'S DESIGNATION OF DRILL CME 55			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION			
3.25" Hollow Stem Auger		9. SURFACE ELEVATION			
3.25" Air Hammer		10. DATE STARTED 9/11/2003		11. DATE COMPLETED 9/11/2003	
12. OVERBURDEN THICKNESS 15'		15. DEPTH GROUNDWATER ENCOUNTERED 14.5'			
13. DEPTH DRILLED INTO ROCK 0'		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED 16.06' 35 Days			
14. TOTAL DEPTH OF HOLE 15'		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES		20. SAMPLES FOR CHEMICAL ANALYSIS		21. TOTAL CORE RECOVERY%	
22. DISPOSITION OF HOLE		BACKFILLED		MONITORING WELL	
				XXXXXXX	
		OTHER (SPECIFY)		23. SIGNATURE OF INSPECTOR	
LOCATION SKETCH/COMMENTS		SCALE:			
PROJECT Vacant Lot Phase II ESA				HOLE NO. VMW-2	

PROJECT

INSPECTOR

HOLE NUMBER

VMW-2

SHEET SHEETS

2 of 2

ELEV.

DEPTH

DESCRIPTION OF MATERIALS

FIELD SCREENING
RESULTS

GEOTECH SAMPLE
OR CORE BOX NO.

ANALYTICAL
SAMPLE NO.

BLOW COUNT

REMARKS

(a)

(b)

(c)

(d)

(9)

10

(a)

(b)

0

5

0

15

20

$$\begin{array}{r} 2 \overline{) 5} \end{array}$$

30

BEDROCK

PROJECT

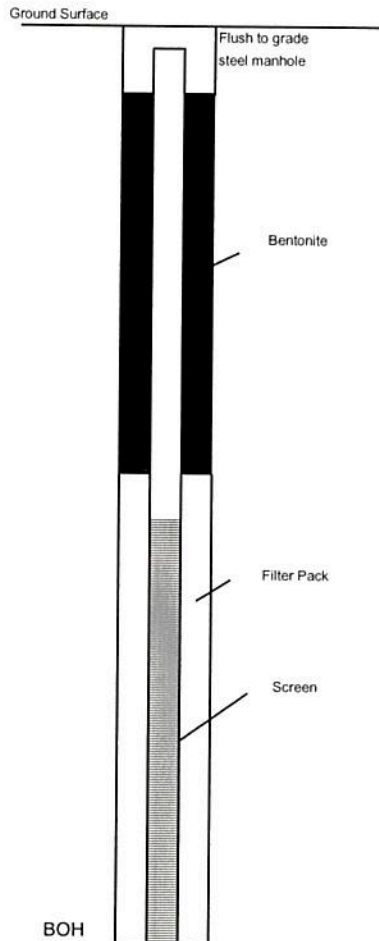
Vacant Lot Phase II

HOLE NUMBER

VMW-2

AS BUILT MONITORING WELL RECORD

HOLE NUMBER: VMW-1	LOCATION: 367 E. Franklin Street, Hagerstown, Maryland	DRILLER: Connelly and Associates
PROJECT: Vacant Lot Phase II	ELEVATIONS (FT MSL)	Depth to GW (FT): 14.5'
DATE WELL COMPLETED: September 11, 2003	SURFACE:	NA
DATE DEVELOPMENT COMP: September 12, 2003	TOP OF PVC CASING:	NA
INSPECTOR	TOP OF OUTER CASING:	NA
		DRILLING METHOD: Hollow stem auger with air hammer
		DEVELOPMENT METHOD:



COORDINATES (Approximate): NORTH: NA
EAST: NA
STICK UP TO TOP OF PROTECT CASING: NA
STICK UP TO TOP OF RISER PIPE: NA

I.D. OF PROTECTIVE CASING: Flush to grade steel manhole
TYPE OF PROTECTIVE CASING: 2"
I.D. OF RISER PIPE: Sch. 40 PVC
TYPE OF RISER PIPE: NA
TYPE OF GROUT: NA

DEPTH TO TOP OF SEAL: Surface
TYPE OF SEAL: Bentonite

DEPTH TO TOP OF FILTER PACK: 9'
TYPE OF FILTER PACK: #2 Morie

DEPTH TO TOP OF SCREEN: 10'
TYPE OF SCREEN: Sch. 40 PVC
SLOT SIZE AND LENGTH: 0.020" Slot
I.D. OF SCREEN: 2"

DEPTH TO BOTTOM OF SCREEN: 15'
BOREHOLE DIAMETER: 3.25"

BOTTOM OF HOLE: 15



PROJECT: Vacant Lot Phase II

USACE - Baltimore District

HOLE NO.: VMW-1

BORING LOG		DISTRICT		HOLE NUMBER VMW-3	
1. COMPANY NAME URS Corporation		2. DRILL SUBCONTRACTOR Connelly and Associates		SHEET SHEETS 1 OF 2	
3. PROJECT Vacant Lot Phase II ESA		4. LOCATION 367 E. Franklin Street, Hagerstown, MD			
5. NAME OF DRILLER Ray Biddinger		6. MANUFACTURER'S DESIGNATION OF DRILL CME 55			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION			
3.25" Hollow Stem Auger		9. SURFACE ELEVATION			
3.25" Air Hammer		10. DATE STARTED 9/11/2003		11. DATE COMPLETED 9/11/2003	
12. OVERBURDEN THICKNESS 21'		15. DEPTH GROUNDWATER ENCOUNTERED Not Encountered			
13. DEPTH DRILLED INTO ROCK 34'		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED			
14. TOTAL DEPTH OF HOLE 55'		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)			
18. GEOTECHNICAL SAMPLES	DISTURBED		UNDISTURBED		19. TOTAL NUMBER OF CORE BOXES
20. SAMPLES FOR CHEMICAL ANALYSIS	VOCS	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY%
22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR	
LOCATION SKETCH/COMMENTS			SCALE:		
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Boring Was Dry. Monitoring Well Not Installed. </div> <div style="background-image: linear-gradient(to right, black 1px, transparent 1px), linear-gradient(to bottom, black 1px, transparent 1px); background-size: 20px 20px; background-repeat: repeat;"></div>					
PROJECT Vacant Lot Phase II ESA				HOLE NO. VMW-3	

BORING LOG (CONTINUATION SHEET)							HOLE NUMBER
PROJECT				INSPECTOR			SHEET
Vacant Lot Phase II ESA							SHEETS
ELEV.	DEPTH	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNT	REMARKS
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	0	Orange/brown CLAY and SILT, trace fine to medium grained sand, trace limestone fragments					
		Dark brown clayey SILT					
	1 0	Orange/brown CLAY					
		Orange/brown CLAY, some medium to coarse grained gravel					
	2 0						
	3 0						
		BEDROCK					
	4 0						
	5 0						
	6 0						
PROJECT							HOLE NUMBER
Vacant Lot Phase II							VMW-3

VMW-1 DTW: 16.06 D: 48.10 WC: 32.04

3 vol: 16 gal Skirt Purge: 1210 Purge rate:

Vol	temp	Cond	DO	pH	ORP	turb	DTW	Time
0	14.57	0.742	2.59	6.96	71.0	89.9	20.55	1210
2	15.32	0.759	5.31	6.97	114.8	80.5	27.02	1218
4	15.53	0.758	5.73	6.97	195.0	75.2	27.02	1225
6	15.52	0.758	5.71	6.97	198.0	71.0	27.02	1230
8	15.53	0.758	5.72	6.97	200.1	65.3	27.02	1235
10	15.53	0.758	5.73	6.97	201.2	62.1	27.02	1240
12	15.53	0.758	5.71	6.97	200.1	61.7	27.02	1245
14	15.53	0.759	5.73	6.97	200.2	61.5	27.02	1250
16	15.53	0.759	5.73	6.97	200.3	61.2	27.02	1250

Sample time 1310

WC: 11.92

14.12.1

01.10.10

3 Vol: 1 gal

purge rate:

Start P: 1000

Vol	temp	cond	Do	pH	orp	TSB	Time	DTW
0	18.25	1.064	2.03	6.59	247	259	10:00	13.53
2.0	18.28	1.072	1.17	6.59	261	146	10:10	13.53
3.0	18.29	1.072	1.10	6.59	265	130	10:15	13.53
4.0	18.29	1.072	1.12	6.59	263	125	10:20	13.53

sample time: 1020

APPENDIX C
ANALYTICAL DATA SUMMARY TABLES

Sample Matrix	Units	SS			SS			SS			SS			SS			SS			US EPA Region III Industrial RBC (non carcinogens 10%)	MDE Anticipated Typical Metal Concentrations (ATCs)	MDE Anticipated Typical Metal Concentrations (ATCs) Max	MDE Non-Residential (non carcinogens 10%)
		result	lab flag	validation flag	result	lab flag	validation flag	result	lab flag	validation flag	result	lab flag	validation flag	result	lab flag	validation flag	result	lab flag	validation flag				
TCL Semivolatiles																							
Anthracene	ug/kg dw	< 570 U	U/Ls	<	520 U		<	470 U		280 J		52 J	<	430 U		67 J		3.1E+07			6.1E+06		
Benzo(a)anthracene	ug/kg dw	73 J	Ls		160 J			120 J		2200		190 J		66 J		450 J		3.9E+03			7.8E+03		
Benzo(a)pyrene	ug/kg dw	99 J	Ls		220 J			300 J		2000		180 J		72 J		510		3.9E+02			7.8E+02		
Benzo(b)fluoranthene	ug/kg dw	98 J	Ls		270 J			270 J		3100		220 J		74 J		510		3.9E+03			7.8E+03		
Benzo(g,h,i)perylene	ug/kg dw	76 J	Ls		140 J			170 J		1500		130 J		45 J		320 J		6.1E+05			6.1E+05		
Benzo(k)fluoranthene	ug/kg dw	110 J	Jc		210 J		Jc	290 J		2100		190 J		86 J		540		3.9E+04			7.8E+04		
bis(2-Ethylhexyl)phthalate	ug/kg dw	370 J	Ls		190 J			200 J		290 J		360 J		140 J		140 J		2.0E+05			4.1E+05		
Carbazole	ug/kg dw	< 570 U	U/Ls	<	520 U		<	470 U		180 J		< 470 U	<	430 U		44 J		1.4E+05			2.9E+05		
Chrysene	ug/kg dw	110 J	Ls		240 J			170 J		2500		220 J		76 J		550		3.9E+05			7.8E+05		
Dibenzo(a,h)anthracene	ug/kg dw	< 570 U	U/Ls	<	520 U			110 J		520		< 470 U	<	430 U		110 J		3.9E+02			7.8E+02		
Diethylphthalate	ug/kg dw	79 J	Ls		< 520 U			100 J		< 470 U	<	< 470 U	<	430 U	<	460 U		8.2E+07			1.6E+07		
Di-n-butylphthalate	ug/kg dw	< 570 U	U/Ls	<	520 U		<	470 U		< 470 U	<	< 470 U	<	430 U	<	460 U		1.0E+07			2.0E+06		
Di-n-octylphthalate	ug/kg dw	< 570 U	U/Ls	<	520 U		<	470 U		210 J	<	< 470 U	<	430 U	<	460 U		4.1E+06			4.1E+05		
Fluoranthene	ug/kg dw	190 J	Ls		290 J			300 J		3300		330 J		100 J		810		4.1E+06			8.2E+05		
Fluorene	ug/kg dw	< 570 U	U/Ls	<	520 U		<	470 U		85 J	<	< 470 U	<	430 U	<	460 U		4.1E+06			8.2E+05		
Indeno(1,2,3-cd)pyrene	ug/kg dw	58 J	Ls		120 J			140 J		1400		100 J		42 J		280 J		3.9E+03			7.8E+03		
Phenanthrene	ug/kg dw	75 J	Ls		220 J			100 J		2000		210 J		48 J		450 J		6.1E+06			6.1E+06		
Pyrene	ug/kg dw	160 J	Ls		400 J	Jc		240 J		4200	Jc	350 J	Jc	110 J	Jc	880	Jc	3.1E+06			6.1E+05		

NIST Library Search (BVA-TIC) *	ID	None	None	None	None	None	None	None

FAL Metals

Antimony	mg/kg	1.1 N	Lm	1.3 N	Lm	1.4 N	Lm	0.62 N	Lm	0.93 N	Lm	0.56 N	Lm	0.5 N	Lm	4.1E+01	3.2E+00	6.0E+00	8.2E+00
Arsenic	mg/kg															1.9E+00	1.1E+01	2.7E+01	3.8E+00
Beryllium	mg/kg	1.5		1.7		1.3		2.7		2.3		1.3		1.2		2.0E+02	1.1E+00	2.7E+00	4.1E+01
Cadmium	mg/kg	1.3		1.4		0.73		1.5		2.1		0.47		0.54		5.1E+01	3.3E+00	1.2E+01	1.0E+01
Chromium	mg/kg	41		43		31		39		37		36		36		3.1E+02	4.2E+01	7.4E+01	6.1E+01
Copper	mg/kg	140 NE J.s		320 NE J.s		30 NE J.s		150 NE J.s		120 NE J.s		28 NE J.s		32 NE J.s		4.1E+03	3.4E+01	6.1E+01	8.2E+02
Lead	mg/kg	150		100		100		100		240		100					5.2E+01	1.7E+02	4.0E+02
Nickel	mg/kg	39		42		27		75		51		19		27		2.0E+03	4.3E+01	5.8E+01	4.1E+02
Selenium	mg/kg	1.2		1.1		1		0.75		0.71		0.88		1		5.1E+02	3.9E+00	9.6E+00	1.0E+02
Silver	mg/kg	0.17 NE J.s		0.2 NE J.s		0.12 BNE J.s		0.11 BNE J.s		0.13 BNE J.s		0.11 BNE J.s		0.11 BNE J.s		5.1E+02	1.2E+01	1.0E+02	1.0E+02
Thallium	mg/kg	0.43		0.46		0.36		0.38		0.22		0.34		0.3		7.2E+00	4.6E+00	1.1E+01	1.4E+00
Zinc	mg/kg	440 E J.s		510 E J.s		200 E J.s		620 E J.s		390 E J.s		110 E J.s		120 E J.s		3.1E+04	1.1E+02	2.8E+02	6.1E+03

[illegible]

	Exceeds EPA Industrial RBC Screening Criteria
	Exceeds MDE Non-residential Screening Criteria
	Exceeds both EPA and MDE Screening Criteria
	Exceeds MDE Anticipated Typical Metal Concentrations (ATCs)
	Exceeds both MDE Anticipated Typical Metal Concentrations (ATCs) and ATC Max

NIJ Library Search (BNA-TIC)

Arithmetic mean	Arguing mode
0.96 N	5
0.87 N	5
0.81 N	5
0.72 N	5
0.23 N	5
0.25 N	5
4.1E+01	32E+00
	6.6E+00
	8.2E+00

Exceeds EPA Industrial RBC Screening Criteria

Exceeds MDE Anticipated Typical Metal Concentrations (ATCs)

Exceeds both MDE Anticipated Typical Metal Concentrations (ATCs) and ATC Max.

Sample Number : S387268*1
 Sample Description : Debris Pile
 Sample Date/Time : 09-15-2003/1330
 Sample Matrix : SS

US EPA Region III

MDE

	Units	result	lab flag	validation flag	Industrial RBC (non carcinogens 10%)	Non-Residential (non carcinogens 10%)
Volatiles by GC/MS						
Methylene chloride (Dichloromethane)	ug/kg dw	14	B		3.8E+04	7.6E+04
Toluene	ug/kg dw	1.1	JB	B,z	2.0E+07	4.1E+06
NIST Library Search (VOC-TIC) *						0.0E+00
NIST Library Search (VOC-TIC) *	ID	None				
TCL Semivolatiles						
Benzo(a)anthracene	ug/kg dw	78	J		3.9E+03	7.8E+03
Benzo(a)pyrene	ug/kg dw	100	J		3.9E+02	7.8E+02
Benzo(b)fluoranthene	ug/kg dw	130	J		3.9E+03	7.8E+03
Benzo(g,h,i)perylene	ug/kg dw	83	J			6.1E+05
Benzo(k)fluoranthene	ug/kg dw	91	J	J,c	3.9E+04	7.8E+04
bis(2-Ethylhexyl)phthalate	ug/kg dw	400	J		2.0E+05	4.1E+05
Chrysene	ug/kg dw	110	J		3.9E+05	7.8E+05
Diethylphthalate	ug/kg dw	64	J		8.2E+07	1.6E+07
Fluoranthene	ug/kg dw	150	J		4.1E+06	8.2E+05
Indeno(1,2,3-cd)pyrene	ug/kg dw	56	J		3.9E+03	7.8E+03
Phenanthrene	ug/kg dw	56	J			6.1E+06
Pyrene	ug/kg dw	140	J		3.1E+06	6.1E+05
NIST Library Search (BN/A-TIC) *						
NIST Library Search (BN/A-TIC) *	ID	None				
PCB's						
Aroclor-1260	ug/kg dw	15	J		1.4E+03	2.9E+03
TAL Metals						
Antimony	mg/kg	0.67	N	L,m	4.1E+01	8.2E+00
Arsenic	mg/kg	18			1.9E+00	3.8E+00
Beryllium	mg/kg	1.2			2.0E+02	4.1E+01
Cadmium	mg/kg	0.53			5.1E+01	1.0E+01
Chromium	mg/kg	37			3.1E+02	6.1E+01
Copper	mg/kg	33	NE	J,s	4.1E+03	8.2E+02
Lead	mg/kg	180				4.0E+02
Nickel	mg/kg	20			2.0E+03	4.1E+02
Selenium	mg/kg	0.84			5.1E+02	1.0E+02
Silver	mg/kg	0.15	NE	J,s	5.1E+02	1.0E+02
Thallium	mg/kg	0.38			7.2E+00	1.4E+00
Zinc	mg/kg	170	E	J,s	3.1E+04	6.1E+03
Mercury						1.2E-02
Mercury	mg/kg dw	0.29	N*	J,m		1.2E-02

Exceeds EPA Industrial RBC Screening Criteria

Exceeds MDE Non-residential clean-up Screening Criteria

Exceeds both EPA and MDE Screening Criteria

Sample Number :	S388312A*3			S388312A*1			S388312A*2						
Sample Description :	VMW-1			VMW-2			VMW-2D						
Sample Date/Time :	10-16-2003/1310			10-16-2003/1020			10-16-2003/1020						
Sample Matrix :	LI			LI			LI			EPA MDE GW Standards			
	Units	result	lab flag	validation flag	result	lab flag	validation flag	result	lab flag	validation flag	MCLs (non carcinogens 10%)	Reg. III Tap Water RBC (non carcinogens s10%)	Type I & II Aquifers (non carcinogens 10%)
Volatiles by GC/MS													
Acetone	ug/l	5.1	J		<	25	U		<	25	U	5.5E+02	6.1E+00
Methyl t-butyl ether (MTBE)	ug/l	0.53	J		<	10	U		<	10	U	2.6E+00	2.0E+01
Styrene	ug/l	0.95	J		<	1	U		<	1	U	1.0E+01	1.6E+02
NIST Library Search (VOC-TIC) *													
NIST Library Search (VOC-TIC) *	None			None			None						
TCL Semivolatiles													
2,6-Dinitrotoluene	ug/l	32			<	10	U		<	10	U	3.7E+00	5.0E+00
NIST Library Search (BNA-TIC) *													
NIST Library Search (BNA-TIC) *	None			None			None						
TAL Metals-Total													
Antimony	ug/l	1.2			0.82		B,p	0.79		B,p	6.0E-01	1.5E+00	6.0E-01
Arsenic	ug/l	24			4.7			5.1			1.0E+01	4.5E-02	5.0E+01
Beryllium	ug/l	1.7			0.34			0.36			4.0E-01	7.3E+00	4.0E-01
Cadmium	ug/l	0.54			0.097		B	0.081		B	5.0E-01	1.8E+00	5.0E-01
Chromium	ug/l	46			12			13			1.0E+01	1.1E+01	1.0E+01
Copper	ug/l	26			4.6			4.7			1.3E+02	1.5E+02	1.3E+02
Lead	ug/l	50			9.9			10			1.5E+01		1.5E+01
Nickel	ug/l	31			5.5			5.7				7.3E+01	7.3E+00
Selenium	ug/l	0.86		B,o	5.2			5.2			5.0E+00	1.8E+01	5.0E+00
Silver	ug/l	0.16		B,p	0.11		B	0.056		B,p		1.8E+01	1.8E+00
Thallium	ug/l	0.41			0.15		B,o	0.16		B,o	2.0E-01	2.6E-01	2.0E-01
Zinc	ug/l	110		E,J,s	15		E,J,s	15		E,J,s		1.1E+03	1.1E+02
Mercury											2.0E-01		2.0E-01
Mercury	ug/l	0.32			<	0.2	U	<	0.2	U	2.0E-01		2.0E-01
TAL Metals-Dissolved													
Antimony (Dissolved)	ug/l	0.88		B,p	0.83		B,p	0.71		B,p	6.0E-01	1.5E+00	6.0E-01
Arsenic (Dissolved)	ug/l	9.2			0.89		B	0.81		B	1.0E+01	4.5E-02	5.0E+01
Beryllium (Dissolved)	ug/l	0.014		B,o	0.018		B,o	0.004		B,o	4.0E-01	7.3E+00	4.0E-01
Cadmium (Dissolved)	ug/l	0.081		B,o	0.056		B,o	0.06		B,o	5.0E-01	1.8E+00	5.0E-01
Chromium (Dissolved)	ug/l	0.71		B,p	0.88		B,p	0.51		B,p	1.0E+01	1.1E+01	1.0E+01
Copper (Dissolved)	ug/l	0.73		B,p	1.3		B,p	1.5		B,p	1.3E+02	1.5E+02	1.3E+02
Lead (Dissolved)	ug/l	0.99			0.66			0.88			1.5E+01		1.5E+01
Nickel (Dissolved)	ug/l	3.2			0.95		B	1.4				7.3E+01	7.3E+00
Selenium (Dissolved)	ug/l	0.42		B,o	4.9			5.2			5.0E+00	1.8E+01	5.0E+00
Silver (Dissolved)	ug/l	0.025		B,p	0.13		B,p	0.035		B,p		1.8E+01	1.8E+00
Thallium (Dissolved)	ug/l	0.017		B,o	0.084		B,o	0.11		B,o	2.0E-01	2.6E-01	2.0E-01
Zinc (Dissolved)	ug/l	7.2		B,p	3.3		B,p	8.2		B,p		1.1E+03	1.1E+02
Mercury (Dissolved)											2.0E-01		2.0E-01
Mercury (Dissolved)	ug/l	<	0.2	U	<	0.2	U	<	0.2	U	2.0E-01		2.0E-01

	exceeds MCL
	Exceeds EPA RBCs for Region III Tap Water
	Exceeds MDE GW Standards for Types I and II Aquifers
	Exceeds MCL + RBC
	Exceeds RBC + MDE
	Exceeds MCL + MDE
	Exceeds MCL + RBC + MDE

APPENDIX D

LABORATORY ANALYTICAL DATA AND DATA VALIDATION REPORTS

EXECUTIVE SUMMARY

Dames & Moore was retained to conduct a Phase I Environmental Site Assessment (ESA) of the Bock Oil Company Property in Hagerstown, Washington County, Maryland (subject property). This Phase I ESA was conducted in general conformance with the methods and procedures described in the American Society for Testing and Materials (ASTM) "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (Standard Designation E 1527-00), published July 2000 and follows the format presented by the Maryland Department of the Environment (MDE) Voluntary Cleanup Program (VCP) for a Phase I Investigation. The Phase I ESA was conducted in accordance with the agreement by and between Dames & Moore and the City of Hagerstown dated April 27, 1999. This Phase I ESA as well as three additional Phase I ESAs (provided as separate reports) are part of a U.S. Environmental Protection Agency (EPA) funded pilot Brownfields Project. The Phase I ESA reports will be submitted to EPA for review and approval prior to implementation of recommendations for Phase II Assessments, if any.

The subject property consists of a former petroleum storage and distribution facility comprising approximately one acre of land located immediately northwest of the intersection of Key Street and Highland Avenue, with a street address of 102 Key Street, City of Hagerstown, Washington County, Maryland. There are a total of three main buildings onsite, a tank farm, loading racks, and a pump house. The subject property is currently vacant but was used as a petroleum bulk storage and distribution from the late 1880s to the early 1990s. Interviews with the former owner, Mr. Frank Bock, indicate that the use of the facility was phased out from the late 1980s to the early 1990s in favor of other terminals the Bock family operated elsewhere in the region. The facility was leased out to small businesses from the early 1990s until recently.

There are currently a total of seven aboveground bulk storage tanks on the subject property. These tanks were used for heating oil and kerosene storage at the time Bock ceased operations in the early 1990s. Additional tanks were historically located onsite, and gasoline was also stored onsite for an unknown period of time. Most of the existing tanks appeared to be empty, although some sludge

or residual product may remain. The tank farm is unlined. When operations began in the late 1800s, petroleum was apparently offloaded by railcar and delivered by horse-drawn wagon. By 1972, petroleum was offloaded exclusively by tank-truck and delivered using a fleet of trucks.

Based on a 1993 Phase II Investigation of an adjacent property, which included installation of monitoring wells adjacent to and downgradient from subject property, groundwater flowing away from the subject property contains dissolved petroleum hydrocarbons at levels below Maryland regulatory guidance levels. It is possible that these petroleum hydrocarbons in the groundwater may be attributable to the subject property.

The historical use of the subject property as an petroleum storage and distribution facility from the late 1800s through the early 1990s has the potential to have resulted in both chronic and acute releases that could have impacted underlying soil and groundwater. Potential areas of concern related to the petroleum operations include current and former storage tanks, loading/offloading practices, the lack of a liner in the tank farm, potential leaks and spills, and a drain collection system that could have discharged petroleum-impacted stormwater. Based on this information, the historical use of the subject property as an oil storage and distribution facility is considered a Recognized Environmental Condition.

A number of ASTs and one potential UST remain on the subject property; the amount of petroleum and residues in these tanks is unknown. Releases from these tanks could create a Recognized Environmental Condition. Several areas of apparent petroleum dumping were observed; petroleum impacted soils were observed that may indicate a Recognized Environmental Condition.

The electrical equipment formerly used to power the fuel pumps have the potential to contain PCBs. Releases from this equipment has the potential to create a Recognized Environmental Condition.

Although not classified as Recognized Environmental Condition under the ASTM standard, a limited visual asbestos assessment was conducted. No suspect ACMs were observed in the garage or stable buildings. No suspect friable ACMs were identified in the warehouse, although several suspect nonfriable ACMs were observed. No sampling was conducted.

Based on the results of the Phase I ESA, offsite activities were identified that have the potential to create a Recognized Environmental Condition on the subject property. Historical records indicated potential moderate to heavy industrial operations at the adjacent the railroad facilities to the north and west; portions of the railroad operations appear to be topographically upgradient and may be hydrogeologically upgradient. Therefore, given the apparent potential for releases from the adjacent facilities to migrate onto the subject property, these railroad facilities are considered a potential Recognized Environmental Condition.

Based on the results of Dames & Moore's Phase I ESA of the subject property, further investigation is recommended. Soils and groundwater from the facility should be sampled and analyzed for TPH, BTEX, and lead. Additional sampling may be warranted near the sump system discharge. Additional analyses may be appropriate for polyaromatic hydrocarbons (PAHs) and heavy metals in association with petroleum sludges. The existing ASTs and USTs should be closed in accordance with Maryland regulations. The various chemical containers observed should be properly characterized and disposed. Soil and/or groundwater samples should be collected from the areas of suspected dumping and analyzed for TPH and metals, at a minimum. In areas near the former pumps' electrical systems, soil and/or wipe samples should be collected and analyzed for PCBs.

Prior to renovation or demolition of the existing structures, a destructive-type asbestos survey should be conducted. The results of the asbestos survey should be used in order to determine the need for asbestos abatement, if any, prior to renovation or demolition activities, and to plan for proper disposal of asbestos identified.

1.0 INTRODUCTION

Dames & Moore was retained to conduct a Phase I Environmental Site Assessment (ESA) of the Bock Oil Company Property in Hagerstown, Washington County, Maryland (subject property). This Phase I ESA was conducted in general conformance with the methods and procedures described in the American Society for Testing and Materials (ASTM) "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (Standard Designation E 1527-00), published July 2000 and follows the format presented by the Maryland Department of the Environment (MDE) Voluntary Cleanup Program (VCP) for a Phase I Investigation.

This Phase I ESA was conducted under Task 3 of Dames & Moore's contract with the City of Hagerstown Brownfields Pilot Program under a grant from the U.S. Environmental Protection Agency. The subject property was one of four properties selected following the development of an inventory of vacant, under-utilized, idled, and abandoned properties in Hagerstown (Task 1), and the prioritization of those sites based on ranking criteria developed and with the assistance of the Community Stakeholders Committee (Task 2). Approximately 200 properties were inventoried in Task 1. This inventory was initially reduced to 57 properties in Task 2, and further screening and ranking was conducted to select the four properties to be investigated. Phase I ESA reports for the other three selected sites are presented separately. The Phase I ESA reports will be submitted to EPA for review and approval prior to implementation of recommendations for Phase II Assessments, if any.

The Phase I ESA was conducted in accordance with the contract between Dames & Moore and the City of Hagerstown dated April 27, 1999. The Phase I ESA objectives, scope, and limitations are presented in the following sections.

1.1 OBJECTIVE

The objective of Dames & Moore's Phase I Environmental Assessment was to evaluate whether current or historical activities on or adjacent to the subject property may have resulted in significant contamination by hazardous materials or wastes, which is subsequently referred to in this

report as a "Recognized Environmental Condition." A Recognized Environmental Condition is defined as:

"The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions."

A Historical Recognized Environmental Condition is defined separately as:

"[An] environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently. The final decision will be influenced by the current impact of the historical recognized environmental condition on the property."

1.2 SCOPE OF WORK

The Scope of Work for the Phase I ESA consisted of an inspection of the subject property and nearby area, a review of historical information on activities at the subject property, review of readily available regulatory information concerning the subject property and other nearby properties of environmental concern, and preparation of a report detailing the results of this effort, conclusions, and recommendations, if any, for further action with respect to environmental concerns raised by historic or current activities. This Phase I ESA was prepared in general conformance with the methods and procedures described in ASTM Standard E 1527-97 and follows the MDE VCP outline for a Phase I Investigation. A copy of the outline is presented as Appendix A.

1.3 LIMITING CONDITIONS

Dames & Moore's site inspection included a walking inspection of areas that were accessible by foot, and a drive-by inspection of surrounding and adjacent properties, including those properties identified in the environmental database search. At the time this report was prepared, Dames & Moore has not received a response from inquiries made to the regulatory agencies. No other conditions that would limit Dames & Moore's ability to complete the scope of work were encountered during the performance of the Environmental Assessment.

1.4 LIMITATIONS OF THE ASSESSMENT

The Phase I Environmental Assessment was prepared in accordance with the Scope of Work described in Section 1.2 and presented as Appendix A. The work conducted by Dames & Moore is limited to the services agreed to with the City of Hagerstown and no other services beyond those explicitly stated should be inferred or are implied.

The conclusions presented in this report are professional opinions based solely upon Dames & Moore's visual observations of the site and the immediate site vicinity, and upon Dames & Moore's interpretations of the readily available historical information, conversations with personnel knowledgeable about the site, and other readily available information, as referenced in the report. These conclusions are intended exclusively for the purpose stated herein, at the site indicated, and for the project indicated.

This report is intended for the use of the City of Hagerstown. The scope of services performed during this investigation may not be appropriate for other users, and any use or re-use of this document, or the findings, conclusions, or recommendations presented herein by other parties is at the sole risk of said user.

This study was not intended to be a definitive investigation of possible contamination at the subject property. The purpose and scope of this investigation was to determine if there is reason to suspect the possibility of contamination at the site. No exploratory borings, soil or groundwater

sampling, or laboratory analyses were performed at the subject property and, therefore, the conclusions set forth herein are made without the benefit of such investigation.

This report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings of this assessment.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Dames & Moore's site visit, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which Dames & Moore is unaware and has not had the opportunity to evaluate.

2.0 PROPERTY DESCRIPTION

Information concerning the subject property was obtained from a site inspection conducted by Mr. Dana Harris of Dames & Moore on Friday, March 2, 2001, and review of the documents referenced in Section 9.0 of this report.

2.1 PROPERTY LOCATION AND LEGAL DESCRIPTION

The subject property consists of approximately 0.99 acre of land located immediately northwest of the intersection of Key Street and Highland Avenue, with a street address of 102 Key Street, City of Hagerstown, Washington County, Maryland. The subject property is identified as Hagerstown parcel no. 021-04-002. The subject property is located within the United States Geological Survey (USGS) Hagerstown, Maryland 7.5-minute topographic quadrangle with an approximate position of 39.638794 degrees latitude and 77.730750 degrees longitude. A site location map is presented as Figure 1, and a site plan is provided as Figure 2.

2.2 PROPERTY AND VICINITY CHARACTERISTICS

The subject property is zoned Residential (R2); however, the property has historically operated as a commercial or industrial facility. The subject property is surrounded by commercial and industrial operations, with commercial, industrial, and residential uses in the surrounding area. The following adjacent sites were observed:

North, northwest, west: Conrail Railroad (zoned IG – Industrial)

East: Conrail Railroad and Hager House and Museum (zoned C2 - Commercial)

South, southeast: Highland Avenue, Hagerstown City Park (zoned R2 – Residential)

Southwest: Sprint Telecom building (zoned R2 – Residential).

A detailed description of current adjacent property uses is provided in Section 2.5.

2.3 PROPERTY HYDROLOGY

The USGS Hagerstown, Maryland 7.5 minute topographic quadrangle (1953, photorevised 1985) indicates that the subject property has an elevation that ranges from approximately 560 to 580 feet above mean sea level (msl). The subject property sits near the crest of a slight ridge that slopes down to the southeast and northwest. The southwest section of the subject property is approximately 20 to 25 feet higher than the northeast section. Areas immediately north and west are topographically upgradient of the subject property; the subject property is located near the crest of a ridge such that areas further to the north and west, and all areas to the south and east, are topographically downgradient from the subject property.

Surface water runoff is expected to generally follow topography. The main loading/offloading racks are surrounded by trench drains that lead to a series of sumps that were reportedly originally designed to separate off any oils prior to the effluent discharging to a storm basin; however, no evidence of a discharge basin could be identified on the subject property at the time of the site inspection. Municipal storm sewers located along Highland Avenue and Key Street are likely to receive most runoff from the subject property. According to Mr. Bruce Johnston, Hagerstown City Engineer, storm sewers in the vicinity of the subject property flow to the southeast along Memorial Avenue, emptying into Antietam Creek approximately 1 mile from the subject property.

2.4 PROPERTY HYDROGEOLOGY

The Conococheague Limestone geologic unit underlies the subject site and consists of dark blue grey, laminated, siliceous to argillaceous limestone interbedded with thin layers of shale. Estimated thickness of the Conococheague Limestone ranges between 1,400 to 1,900 feet below the ground surface (MDG, 1989).

Soils of the subject property belong to the Hagerstown-Duffield-Frankstown Association. These soils are characterized as well drained, deep, and medium textured soils. These soils have been developed from the massive limestone formations located in the Hagerstown valley. Ledges of limestone outcrops are fairly common in these soils (SCS, 1959).

The subject site is located in the Hagerstown groundwater province. The hydrology of this groundwater province is complex due to the broken and folded characteristics of the limestone. The limestone underlying the Hagerstown valley has a system of solution channels and caverns, which permits groundwater flow from one limestone formation to another. Recorded depths of groundwater in wells located in the vicinity of the subject property are approximately 25 feet bgs (MGS 1991). The direction of groundwater flow is anticipated to follow surface topography and generally flow in a southwesterly direction in the vicinity of the subject site. Topographic conditions indicate that areas immediately northeast are likely to be hydrogeologically upgradient of the subject property with respect to shallow groundwater. However, faults, fractures, and karst features in the underlying limestone may influence the groundwater flow within the underlying aquifers. Site specific groundwater conditions can only be evaluated by a subsurface investigation that would include the installation of monitoring wells.

2.5 CURRENT USE OF ADJOINING PROPERTIES

The subject property is bound to the north by a multi-line railroad. The subject property is bound to the east by one railroad line, beyond which is the Hager House and Museum. Dames & Moore observed no indication of railroad maintenance facilities, structures, or transformers immediately adjacent to the subject property. The subject property is bound to the south and southeast by Key Street and Highland Avenue, across which is a Hagerstown city park. The subject property is bound to the west by a Sprint Telecom building and a vacant, undeveloped parcel.

3.0 STANDARD ENVIRONMENTAL RECORDS REVIEW

3.1 ENVIRONMENTAL DATABASES REVIEW

Dames & Moore reviewed information gathered from several environmental databases through VISTA Information Solutions, Inc. (VISTA) to evaluate whether activities on or near the subject property have the potential to create a Recognized Environmental Condition on the subject property. VISTA reviews databases compiled by Federal, state, and local governmental agencies. The complete list of databases reviewed by VISTA is provided in VISTA's report, which is included in Appendix B. It should be noted that this information is reported as Dames & Moore received it from VISTA, which in turn reports information as it is provided in various government databases. It is not possible for either Dames & Moore or VISTA to verify the accuracy or completeness of information contained in these databases. However, the use of and reliance on this information is a generally accepted practice in the conduct of environmental due diligence. A description of the databases searched and the information obtained is summarized below:

Type of Database/Date	Description of Database/Effective Date	Radius Searched	Number of Sites Identified
NPL	The National Priorities List identifies uncontrolled or abandoned hazardous waste sites. To appear on the NPL, sites must have met or surpassed a predetermined hazard ranking system score, been chosen as a state's top priority site, pose a significant health or environmental threat, or be a site where the EPA has determined that remedial action is more cost-effective than removal action. Effective Date – 8/00	1 mile	0
CORRACTS	Listing of RCRA facilities which are undergoing corrective action. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA. Effective Date – 6/00	1 mile	0
CERCLIS/ NFRAP	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies hazardous waste sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment, and closed sites for which the EPA has determined that no further action is required (NFRAP). Effective Date – 8/00	0.5 miles	2

Type of Database/Date	Description of Database/Effective Date	Radius Searched	Number of Sites Identified
RCRA TSDs	Resource Conservation & Recovery Act treatment, storage, or disposal sites Effective Date – 6/00	0.5 miles	0
RCRA Generators	RCRA-regulated hazardous waste generator notifiers list; both Large and Small Quantity Generators are included in this list Effective Date – 6/00	0.125 miles	0
ERNS and State Spills list	EPA's Emergency Response Notification System (ERNS) land State Spill lists contains reported spill records of oil and hazardous substances Effective Date – 12/99	0.125 miles	0
SCL	State Equivalent CERCLIS List Effective Date – 3/00	0.5 mile	1
SWF/LS	State inventory of solid waste disposal and landfill sites Effective Date – 10/99	0.5 miles	1
LUST	List of information pertaining to all reported leaking underground storage tanks Effective Date – 2/99	0.5 miles	34
UST	State registered underground storage tank sites listing Effective Date – 7/00	0.25 miles	3

The subject property was identified as an “unmapped” (see discussion of unmapped sites below) LUST site. The database indicates that Bock Oil Company on Highland Avenue is listed as LUST case 92-1961WA. According to the database, the case is closed. No further information was provided in the database. Onsite tank issues are discussed further in Section 7.0.

Only one adjacent site was identified on the database report. The adjacent city park to the south was listed on the LUST database for undisclosed reasons. The database lists an address of 501 Virginia Avenue, which is actually approximately ¼ mile to south; however, the city park itself extends to areas adjacent to the subject property. The database indicates that the LUST case is closed. The city park is topographically downgradient from the subject property. Based on topography and the closed case status, the city park LUST site is not considered a Recognized Environmental Condition.

The following sites were identified on the CERCLIS, NFRAP, or SCL databases:

- Magnus Company, 0.4 mile north at Elizabeth Street, listed on NFRAP – the database does not explain why the facility is listed. The site is listed with an EPA ID of “MDD98053826”. The site Discovery phase was completed in 1981, the Preliminary Assessment was completed in 1984, and the site was flagged for no further action on March 1, 1984. No additional details are provided. The location provided for the facility indicates that the Magnus Company site is topographically crossgradient from the subject property. Based on distance, topography, and the NFRAP status, this facility is not considered a Recognized Environmental Condition.
- Koppers Company, 0.4 mile west at 100 Clair Street, listed on NFRAP and SCL - the database does not explain why the facility is listed. The site is listed with an EPA ID of MDD980552368. The site Discovery phase was completed in 1979, the Preliminary Assessment was completed in 1980, and the site was flagged for no further action on September 1, 1980. The database indicates the SCL case has also been flagged no further action. No additional details are provided. The location provided for the facility indicates that the Koppers Company site is topographically crossgradient to downgradient from the subject property. Based on distance, topography, and the NFRAP status, this facility is not considered a Recognized Environmental Condition.

One UST site was identified within 1/8 mile of the subject property: the Garlock Manor LLC, 241 South Prospect Street, approximately 500 to 750 feet to the east and topographically crossgradient to downgradient from the subject property. The UST was not listed as leaking. Based on topography and exclusion from the LUST list, this site is not considered a Recognized Environmental Condition.

Two UST sites and an additional two LUST sites were listed between 1/8 to 1/4 mile from the subject property:

- Kenner Residence, located 0.2 mile to the west and topographically crossgradient to downgradient, is listed as a closed LUST case. Based on distance, topography, and closed case status, this site is not considered a Recognized Environmental Condition.
- Dwyer Center, located approximately 0.2 mile to the east and topographically crossgradient to downgradient, is listed on the UST database but is not listed on the LUST database. Based on distance, topography, and exclusion from the LUST list, this site is not considered a Recognized Environmental Condition.

- Hendrickson Property, located approximately ¼ mile to the northeast and topographically crossgradient to downgradient, is listed on the UST and LUST databases. The LUST case is reported as being related to heating oil and is listed as an open case. However, based on the relative immobility of heating oil, the distance from the subject property, and its topographically crossgradient to downgradient position relative to the subject property, this LUST is unlikely to impact the subject property and is therefore not considered a Recognized Environmental Condition.

A number of additional LUST sites were identified between ¼ to ½ mile from the subject property; however, based on their mapped positions, these sites are all topographically crossgradient to downgradient from the subject property; many are listed as closed cases. Based on distance and topography alone, none of these sites would be expected to impact the subject property, and therefore, these remaining LUST sites are not considered Recognized Environmental Conditions.

Dames & Moore reviewed the Unmapped Sites, which are sites that have not been geocoded based on lack of sufficient data regarding their exact location within the general area. With the exception of the subject property listing, no Unmapped sites were identified that appear to be within the immediate vicinity of the subject property and none of these Unmapped sites appears likely to be a Recognized Environmental Condition.

3.2 REGULATORY AGENCY CONTACT

A written inquiry was submitted by Dames & Moore to the MDE regarding the subject property. Dames & Moore received a response from the MDE that no records were available for the subject property. Subsequently Dames & Moore spoke with MDE UST Inspector Rob Hill, who was called out to the subject property in 1992 for the LUST case mentioned previously. Mr. Hill stated that the file was missing and that he did not recall the exact nature of the case; however, he stated that the case was closed. Correspondence with regulatory agencies is provided as Appendix C.

4.0 PREVIOUS PROPERTY INVESTIGATIONS

Based on information obtained from current owners, there is no indication that prior environmental investigations have been conducted on the subject property.

The City of Hagerstown provided Dames & Moore with a copy of a Phase I and Phase II environmental assessment dated May 20, 1993, which was performed by Schnabel Environmental Services (Schnabel) at the former Digby Building site, located south of the subject property, across Highland Avenue. Excerpts from the Schnabel report are included in Appendix D. The Digby property was a former shoe /leather manufacturing facility eventually purchased by the City of Hagerstown for redevelopment as part of a city park. Historical information presented in the Schnabel report generally agrees with the results of Dames & Moore's historical research presented in Section 5.0. Schnabel performed a file review at the Maryland Department of the Environment and identified files for Bock Oil. According to the Schnabel report, Bock Oil was permitted with the state as an oil storage facility (no permit no. provided). The state's files reportedly indicated that the subject property was inspected in 1989 at which time no oil saturated soils were found (MDE Report No. 89-OP-0767). Schnabel indicates that no files were found for the Digby Building itself. The file review does not discuss other sites within ¼ mile of the subject property.

During Schnabel's Phase II investigation, soil sampling was conducted around the Digby facility, and a total of four groundwater monitoring wells were installed and groundwater samples were collected. Well MW-1 was installed on Highland Avenue, immediately south of the subject property (Figure 2); the remaining three wells were installed at the Digby facility itself. Groundwater flow was determined to be to the south. A total of twelve hand-driven shallow soil samples were collected at the Digby facility. No volatile organic compounds (VOCs), semivolatile organic compounds (VOCs) or PCBs were detected in the shallow soil samples from the Digby facility. One soil sample contained total petroleum hydrocarbons at a concentration of 2.8 parts per million (ppm), which Schnabel noted is below the Maryland guidance level of 100 ppm (used for petroleum storage tanks). It should be noted that Schnabel identified petroleum staining and other evidence of possible petroleum uses at the Digby facility, and therefore, there is no indication that the TPH detected onsite is likely to have originated offsite.

Analytical results for groundwater samples indicated that the sample from MW-1 (downgradient from the subject property) contained TPH at a concentration of 460 micrograms per liter ($\mu\text{g/L}$, or parts per billion [ppb]), which Schnabel noted is below the Maryland guidance of 1,000 ppb, and xylenes at a concentration of 3 ppb, which Schnabel noted is less than the Maryland guidance level of 10 ppb. No other VOCs, and no SVOCs, PCBs, cyanides, or phenols were detected in the groundwater sample from MW-1. MW-1 contained detectable levels of cadmium (10.5 ppb), lead (18 ppb), and zinc (23.2); the concentrations of cadmium and lead slightly exceeded their respective action levels. The groundwater samples from the Digby facility (further downgradient from the subject property) contained chlorinated solvents as well as various metals, some of which were detected at concentrations exceeding their respective action levels. Schnabel points out that activities at the Digby facility may be the source for the soil and groundwater contaminants identified. Schnabel indicates that some of the metals could be attributed to "petroleum production", but they do not suggest that Bock Oil operations would be considered such a source. Schnabel does not discuss the significance of the TPH detection in MW-1, adjacent to and downgradient from the subject property. However, given the historical petroleum storage operations at the Bock Oil facility, this detection could represent a release from the subject property.

5.0 CURRENT AND PAST USES OF THE PROPERTY

Information concerning the history of the subject properties was obtained through the review of aerial photographs, interviews, city directories, Sanborn Fire Insurance Maps, and other sources referenced in Section 11.0 of this report.

5.1 CURRENT AND PRIOR OWNERSHIP

Dames & Moore was provided with limited title information during an interview with Mr. Frank Bock, the former owner. Mr. Bock stated that his family purchased the subject property in 1972 from Exxon Corporation (formerly known as Esso and Standard Oil). Standard Oil acquired the property in 1900 from Atlantic Refining Company. Mr. Bock believed that Atlantic Refining developed the property around the late 1880s, prior to which he believed the site was undeveloped. Subsequent to Dames & Moore's site inspection, the subject property was purchased by Before & After Contracting.

5.2 AERIAL PHOTOGRAPHS

Historical aerial photography covering the site in 1938, 1952, 1962, 1982, and 1997 was reviewed monoscopically to identify potential sources of visible contamination at the time the photographs were taken. Copies of aerial photographs are included in Appendix E.

In 1938, the subject property appears to be developed with one large bulk storage tank, three medium-sized tanks, and three or four smaller tanks. The existing stable and garage buildings are present in their current locations, but the current warehouse location is occupied by two separate buildings. Railroad tracks are located immediately north and west of the subject property, with several apparent railroad-related industrial buildings and a roundhouse further to the north and west. The area to the northeast appears to be wooded. None of the existing roads is visible to the southeast, although an apparent railroad spur is present near the current locations of Key Street and Highland Avenue. An apparent industrial warehouse is located adjacent to the southeast, with undeveloped land to the south.

In 1952, several changes are evident in the onsite tank inventory. It appears that several tanks visible onsite in 1938 have remained, including the one large tank, one of the medium-sized tanks, and at least two smaller tanks. All other tanks visible in 1938 appear to have been removed, and several new tanks are present. The total number of tanks visible in 1952 appears to be 10, as follows: four large tanks and six medium- or smaller-sized tanks. Due to the scale and quality of the photograph, it is unclear whether the existing pump house is present. The two buildings previously visible at the current warehouse location are no longer present and the existing warehouse building is now visible. The existing fuel island canopy is now visible between the stable and garage buildings. No significant changes are evident on adjacent sites.

The 1962 aerial photo shows no significant changes on the subject property or adjacent sites, with the exception of Key Street, which is now visible to the southeast of the subject property.

In 1982, several tanks appear to have been replaced or removed. There are now a total of three larger tanks and five smaller tanks. Two smaller tanks on the west side of the property appear to have been removed and one larger tank on the east side of the property has been replaced by a smaller tank. The pump house is clearly visible for the first time. The Hager House and Museum is now visible to the northeast of the subject property. A cut appears to have been made for Highland Avenue to the south; however, the road still appears to be unpaved. The industrial facility to the southeast is located on the opposite side of Highland Avenue. No other significant changes are evident on adjacent sites.

In 1997, the subject property appears much as it does today with respect to structures. The existing three buildings, three larger tanks, and four smaller tanks are present in the current configurations. The north end of the subject property is being used for storage of pickup truck caps. Highland Avenue has been paved to the south and southeast of the subject property. The industrial facility has been removed from the adjacent site to the southeast. The area immediately to the southwest has been cleared and developed with the existing Sprint Telecom building. No other significant changes are evident on adjacent sites.

5.3 OTHER DOCUMENTS

Sanborn Fire Insurance Maps

Dames & Moore reviewed Sanborn Fire Insurance Maps dated 1910, 1918, and 1926 (with revisions in 1963, 1964, 1965, 1978, and 1980). The following Sanborn maps included coverage for the subject property:

- 1910: Three oil tanks of unspecified size are depicted along with a storage building (current stable building), filling structure, and small 2-story structure. A railroad is depicted on the north and west sides of the subject property. A railroad spur is shown leading from the main railway to the north to a leather and rubber factory to the southeast of the subject property. In between the subject property and the railroad spur is a small paper storage building.
- 1918: An additional two storage tanks are depicted on the subject property. No significant changes were depicted on adjacent sites.
- 1926: The revisions to the 1926 map (literally cut and pasted directly onto the map) are not clearly labeled, making it difficult to distinguish 1926 features from later revised features; all features shown on the map are discussed as if they dated back to 1926. A total of 15 tanks are now shown on the subject property, including: three larger gasoline bulk storage tanks; four smaller oil tanks; one large kerosene tank; and seven smaller tanks of unspecified content. The map indicates the existing tank farm area was constructed in 1915. Four of the smaller tanks are depicted north of the existing tank farm area. The three main buildings and the pump house are all depicted in the current configurations. A smaller building is shown near the present-day location of the fuel island canopy. A railroad spur is shown extending onto the subject property, and a tool house is depicted between the spur and the railroad, apparently west of the property line. No significant changes are evident on adjacent sites.

Hagerstown City Directories

Dames & Moore reviewed historical Polk Hagerstown City Directories for the years between 1894 and 1996. The following listings were identified:

- 1894: No streets listed. No oil companies of any kind listed under service directory.
- 1895: No streets listed. Atlantic Refining Company listed for fuel delivery.

- 1910: No streets listed. Standard Oil listed for fuel delivery.
- 1925: No streets listed. Standard Oil listed for fuel delivery.
- 1935: No streets listed. Standard Oil listed for fuel supply.
- 1940: Key Street listed. Subject property listed as Standard Oil of New Jersey (address listed as "000"). Other listings for "000" address include Miller's Jacob, Inc. and residences; however, it is unclear whether these listings refer to the subject property. 600-602 Key Street (southeast) is listed as Hagerstown Leather Goods, Inc., and Hagerstown Rubber Company.
- 1945: No significant changes
- 1950: No significant changes
- 1955: No significant changes
- 1961: Subject property now listed as Esso Standard Oil.
- 1965: Subject property now listed as Humble Oil & Refining Company Wholesale Gas (now 102 Key Street). Hagerstown Rubber now listed as 104 Key Street. Miller's Jacob now listed as a warehouse merchandiser, with an address of 100 Key Street.
- 1970: 104 Key Street is now listed as Digby Products. 103 Key Street is listed as the Hager House. Highland Avenue is now included, with residential addresses listed.
- 1976: The subject property is now listed as Bock Oil Company.
- 1986: No significant changes were identified.
- 1986: In addition to Bock Oil, Shelly's Truck Caps is listed on the subject property.

Hagerstown Building Inspectors Files

The City of Hagerstown Department of Planning and Economic Development had only one file at the Hagerstown Building Inspector's office: a 1992 notice of violation (NOV) for Property Maintenance Code violations. The NOV did not state that the maintenance problems were related to environmental issues.

Interview

Mr. Bock, the former property owner and estate trustee for the Bock family (owners since 1972), indicated that the subject property was developed originally by Atlantic Refining and that fuel was stored onsite and delivered to customers by horse-drawn wagon. Mr. Bock stated that Exxon had formerly used at least two of the existing ASTs for gasoline storage and that at least one of these tanks was then converted for fuel oil storage. At the time his family purchased the facility in 1972, all fuel

was delivered to the site by truck; Mr. Bock estimated that the railroad delivery of fuel to the site was probably discontinued well before 1970. As of 1972, there were reportedly a total of eight bulk ASTs on the subject property; one of these tanks was removed in the early 1990s. According to Mr. Bock, there were never any inventory discrepancies or other evidence of releases. Bock Oil was reportedly directed by the City of Hagerstown to pump out its drainage sump/separator tanks annually; Mr. Bock indicate that the only material that was ever found in the tanks was water, indicating no apparent spills. According to Mr. Bock, in the early 1990s the state of Maryland evaluated the facility's tank farm and required that a clay liner be installed; the facility stopped operations and the liner was never installed. Mr. Bock believe that most of the fuel was emptied from the storage tanks but did not recall if an effort was made to completely drain the tanks. The company phased out operations over a number of years in the late 1980s and concentrated on its businesses at other locations. Mr. Bock indicated that all fuel operations were ceased at the subject property by approximately 1991; the property was later leased out to small businesses, including a truck cap sales company, and a small-scale building contractor.

Summary of Historical Site Uses

The following table summarizes prior uses of the property based on Dames & Moore's review of available historical information.

IDENTIFIED HISTORICAL SITE USES

Years	Owner	Use
Up to 1880s	Unknown	Apparently Undeveloped
1885 – 1792	Various oil companies (Standard Oil, Esso, Exxon, Bock Oil, etc.)	Bulk petroleum storage and distribution
Early 1990s – present	Bock Oil with leases to small businesses	Truck cap sales, limited storage of building supplies

Due to the potential for historical fuel releases, the use of the subject property for petroleum storage and distribution for more than 100 years is considered a Recognized Environmental Condition.

6.0 CURRENT AND PAST USES OF ADJOINING PROPERTIES

Current uses of the adjacent properties are identified in section 2.5. The review of aerial photography dating back to 1938 indicated moderate to heavy industrial uses to the north (railroad and associated buildings), west (railroad and associated buildings), and southeast (rubber and leather manufacture). Portions of the railroad operations to the north and west appear to be topographically upgradient and may be hydrogeologically upgradient. Therefore, given the apparent potential for releases from the adjacent facilities to migrate onto the subject property, these rail facilities are considered a Recognized Environmental Condition. The adjacent leather and rubber manufacturing (former Digby facility) was found to be hydrogeologically downgradient during Schnabel's groundwater investigation discussed previously. As such, it would appear less likely that releases from this facility would have migrated onto the subject property, and this facility is not considered a Recognized Environmental Condition.

7.0 PROPERTY RECONNAISSANCE

Dames & Moore inspected the subject property on Friday, March 2, 2001. Dames & Moore's site inspection included a walking inspection of the subject property. Photographs taken during Dames & Moore's site inspection are provided in Appendix F.

7.1 CURRENT USES OF THE PROPERTY

The subject property is currently vacant, but was formerly used as a bulk petroleum storage and distribution facility.

7.2 EXTERIOR AND INTERIOR SITE OBSERVATIONS

The subject property is approximately 1 acre in size and is accessible via vehicle (two gated entrances off of Highland Avenue) and rail. The facility consists of three main buildings, a pump house, one primary loading/offloading area, and a tank farm, as described below. The facility is built upon a steep hillside such that the tank farm, one main building (the Stable), and the pump house all sit approximately 10 to 20 feet above the other areas of the plant. The tank farm was observed to be unpaved. The lower portions of the facility had a concrete surface, with the exception of the northeast end of the property, which has a dirt and gravel surface. Scrap metal and other debris was observed in the rear of the warehouse and elsewhere on the north and northeast portions of the site.

Warehouse

According to Mr. Bock, this building was used for offices and for storage of equipment and supplies. The Warehouse is a two-story brick structure with a slab-on-grade foundation and an approximate footprint of 6,000 square feet. There are two small loading ramps on the front (southeast) side of the building; one of these ramps contains four loading racks. The interior of the building contains offices and storage rooms and was observed to be littered with old papers, household items, and limited amounts of potentially hazardous materials (discussed in Section 7.2.1).

Garage

According to Mr. Bock, this building was used for storing the facility's vehicles. The Garage is a single-story, approximately 1,400 square foot brick building with several truck bays. No lifts were observed. The interior has a cement floor that was observed to be cracked or missing concrete (such that the underlying soil was exposed) in several areas. The electrical services that power the main fuel pumps are located on the south wall of the building. Dames & Moore observed the interior of the Garage to be littered with miscellaneous debris and limited amounts of potential hazardous materials (discussed in Section 7.2.1).

Stable

According to Mr. Bock, Bock Oil did not use this building extensively. Mr. Bock indicated that Atlantic Refining may originally have used this building as a stable for its horses, which were used for oil deliveries during the early part of the facility's history. The Stable is a two-story, approximately 1,600 square-foot brick building with bay doors on the first and second floors, suggesting that petroleum may have been distributed from the second story of this building at one time. The roof is equipped with a large circular opening that may have once been used for bringing product inside the building. The interior floors are either concrete or asphalt; the apparent stable section of the building had numerous ring-like indentations in the concrete that appeared to have been made by 55-gallon drums or similar-sized wooden barrels. During the late 19th century, it is possible that barrels of fuel could have been loaded from this area onto horse-drawn wagons for fuel deliveries. Dames & Moore observed the interior of the building to be littered with miscellaneous debris.

Pump House

Mr. Bock stated that the pump house was formerly used for railroad offloading; however, he indicated Bock Oil never offloaded by rail and that the pump house was not used since at least 1972; Mr. Bock believed that Exxon had ceased rail deliveries in the 1950s, but he was not certain. In addition, Mr. Bock indicated that electrical service for the pump house had been disconnected by the time Bock Oil began operations. The pump house is a single-story, approximately 150 square-foot

brick building. The interior was heavily littered with scrap metal and miscellaneous debris that significantly obscured the view of interior areas. Dames & Moore observed a separate concrete pad with a rusted and twisted metal frame structure where the electrical service appears to have been located. The area around the pad was heavily overgrown, obscuring the view of the ground.

Loading/offloading Area

Mr. Bock stated that, during Bock Oil's operations, fuel was offloaded from tanker trucks and pumped up to the tank farm; the facility's trucks were filled via gravity feeding and/or pumping. The ground in this area is covered with concrete and two trench drains are situated around the loading/offloading racks such that spills would be directed into the sump system mentioned previously. A total of 11 pumps were observed in the area, including five elevated racks under canopy. Electrical equipment for the racks is located inside and outside of the Garage building, adjacent to the loading/offloading area.

Tank Farm

The Tank Farm currently consists of 7 bulk ASTs. No pavement or spill basins were observed, and the tank farm generally appears to be constructed directly on top of native soils and bedrock. Tank issues are discussed in detail in Section 7.2.3.

7.2.1 Hazardous Substances

Dames & Moore observed limited quantities of hazardous substances, all of which appear to have been left behind after Bock Oil ceased operations in the early 1990s. Dames & Moore observed several drums:

- One 55-gallon plastic drum partially, located within the garage. The drum was situated on a concrete floor area with no secondary containment, The drum was partially full of what appeared to be waste oil, which had leaked or spilled onto the sides of the drum and onto the floor around the drum. Several areas of stained concrete and bare ground were observed in the vicinity of the drum.

- One apparently-full 55-gallon and one apparently-full 30-gallon drums containing an apparent petroleum product (Penetone Oil Slix) were observed within a first floor storage area in the warehouse. Neither drum had secondary containment. Both drums were heavily corroded, although neither appeared to be leaking. No staining was observed around the immediate vicinity of the drums.

Approximately 50 to 100 small containers (1- to 5-gallons in capacity) of various lubricants, paints, solvents, and other typical maintenance materials were observed scattered throughout the warehouse and garage buildings. None of these containers appeared to have significant leakage, although several areas of staining were observed in the garage and in storage areas within the warehouse.

The exact source of the staining observed within the warehouse and garage areas is unclear. However, based on the nature of operations and the facility, this staining and the past use of hazardous substances could be considered a Recognized Environmental Condition.

7.2.2 Hazardous Wastes

Dames & Moore observed no onsite activities that are likely to generate hazardous waste at this time. Because the chemicals on the subject property are no longer used, they will eventually need to be disposed of properly. Many of the materials identified may have to be disposed of as hazardous wastes.

Based on initial discussions with Mr. Bock, it appears that most of the former storage tanks were used as long as practically needed by the company, but it was not clear whether they were fully drained. Dames & Moore has attempted to contact Mr. Bock to inquire as to the how the tanks' contents were and bottom sludges were disposed of, if at all, when operations were ceased.

The subject property was not listed as a generator of hazardous waste in the environmental database search discussed in Section 3.1.

7.2.3 Underground/Aboveground Storage Tanks

Dames & Moore observed a vent and fill on the north end of the warehouse. Mr. Bock indicated that a heating oil UST, associated with the warehouse's heating system, is located in this area. According to Mr. Bock, the UST was pumped out in the late 1980s or early 1990s and was not used after that time. Mr. Bock was not aware of any inventory losses from this tank. As mentioned in Section 3.1, the subject property appears on the MDE's LUST database, but the state no longer has a file for the case. It is unclear why the tank was not properly closed at the time it was taken out of service. Under Maryland UST regulations, the UST is regulated as a commercial heating oil tank, and as such, the UST should have been closed in accordance with UST regulations. It is unclear whether the Maryland LUST case may be related to USTs other than the heating oil UST. Although the Maryland LUST case is reportedly closed, without further information, it is difficult to determine whether a release may have occurred. Due to the potential for releases of heating oil from the abandoned UST, and without further information about the Maryland LUST case, this heating oil UST is considered a Recognized Environmental Condition.

There are currently 7 bulk ASTs on the subject property, as described below. Information concerning these existing ASTs was obtained from site plans and a visual inspection.

Reported Capacity (gallons)	Reported Current/Former Content	Facility Tank ID No.
110,000	Fuel Oil	8
60,000	Fuel Oil/Gasoline	2
60,000	Fuel Oil/Gasoline	11
16,000	Kerosene	3
16,000	Kerosene	4
16,000	Kerosene	9
16,000	Kerosene	10

Most of the tanks appeared to be heavily corroded, and some of the tanks had large holes in their sides. The tanks did not appear to be full, although it was not clear whether petroleum or residues were left in the tanks. Strong petroleum odors were observed within most areas of the tank farm. According to Mr. Bock, Bock Oil never experienced an inventory losses, nor was Mr. Bock aware of any leaks, spills, or releases from the facility.

Based on historic documentation, at least 5 to 7 additional bulk storage tanks were formerly located on various portions of the subject property, including at least three within the existing tank farm.

Piping within the tank farm itself appeared to be primarily aboveground, while piping from the tank farm to the loading/offloading areas appeared to be below ground. The area around the tank farm was heavily overgrown, obscuring views of the ground surface in many areas. Bedrock outcrops were observed in the vicinity of several tanks; the tanks appeared to be set directly on top of bedrock and/or native soils, with no apparent liner. As discussed in Section 5.3, MDE required the subject property to install a clay liner in the early 1990s, but site operations ceased and the liner was not installed.

A concrete block wall, apparently supposed to function as a containment dike (even though the other edges of the tank farm were not diked) was observed on the north end of the tank farm. No petroleum-saturated ground, stained soils, stressed vegetation, or other obvious evidence of releases were observed within the tank farm area.

Mr. Bock indicated that the pump house had been used for rail transfers and that both the pump house and electrical service ("pump base") had been abandoned prior to the date Bock Oil took over the facility. Mr. Bock stated that product was loaded and offloaded under the canopy at the main loading area; during offloading, product was pumped up to the tanks and during loading, product was pumped or gravity fed from the tanks. Dames & Moore observed no heavy staining in the main loading area. Only one of three sumps could be opened for inspection; although a slight sheen was observed on water standing in the sump, no evidence of significant releases was observed.

Although Dames & Moore did not observe direct evidence of releases from the tank farm and/or loading areas, given the length of service of this facility and the lack of a liner, there is a significant potential that releases could have occurred during transfer or storage of petroleum products. Because of the potential for such releases, if any, to have an impact on underlying soils and

groundwater, these current ASTs and associated piping and pumps, as well as any former AST systems, are considered a Recognized Environmental Condition.

Several smaller ASTs, none of which had secondary containment, were observed, as summarized below.

Capacity (gal)	Content	Location	Observations
1,000 (estimated)	Unknown; not full	Central portion of site	Heavily corroded. Appears that this tank may originally have been underground tank. Heavily overgrown around one side, light to moderate staining on concrete at other side.
275	Heating Oil (presumed) Not full	Front of warehouse by UST	Corroded, moderate staining on asphalt under tank.
275	Heating Oil (presumed) Not full	Northeast end of warehouse	Corroded, moderate staining on gravel under tank.
275	Unknown (apparently empty)	Rear of warehouse	Corroded, no staining on gravel
275	Unknown; not full	Northwest of stable	No staining

The staining observe underneath these tanks is likely to come from drips or small spills during filling.

None of the tanks appeared to have cracks or holes. The staining observed is likely to be considered *de minimus*. However, the 1,000-gallon tank was shaped more like a common UST design, and the tank was encrusted in dirt, pitted, and had pull handles typically seen on USTs. Also, the tank appeared to have been placed on top of an existing section of curb, with gravel and dirt then dumped over top of the tank; several years of vegetation growth was evident around the tank. Although none of these observations proves the tank was underground, given the uncertainty over USTs raised by the Maryland LUST case, it is possible that this tank was formerly used as a UST. This tank may also represent a Recognized Environmental Condition.

7.2.4 PCB-Containing Equipment

Dames & Moore observed no indication of onsite transformers. Most of the electrical systems appeared to have been removed from the pump stations. However, given the age of the facility, the

electrical systems former at the garage (main loading pumps) and pump base may have contained PCBs. It is unclear where the facility's transformer(s) were located. Some staining was observed in the garage near the electrical panels, including some apparent petroleum staining running down the walls of the garage. The ground around the pump base was obscured by heavy overgrowth. The staining observed near the garage electrical panels has the potential to be associated with the former electrical equipment and therefore may contain PCBs.

One hydraulic elevator was observed in the warehouse. The elevator could not be moved to provide access to the pit; however, it appeared that several feet of water were in the pit. Given the age of the building, the elevator's hydraulic fluids may have contained PCBs. A large number of electric motors were observed around the warehouse interior. Repairs of certain electric systems have the potential to have involved PCBs.

The potential for PCBs to have been released around the former electrical systems and inside the warehouse areas is considered a Recognized Environmental Condition.

7.2.5 Solid Waste

No solid wastes are currently generated on the subject property. As mentioned previously, various scrap metal and other types of non-hazardous debris was observed around the subject property. Based on site observations this debris is unlikely to create a Recognized Environmental Condition on the subject property.

7.2.6 Drains and Sumps

Other than the aforementioned sump systems, no drains or sumps were observed. The drain/sump system was designed to catch petroleum spills using a passive skimming device. There is a potential that such a system, if not maintained properly, could have resulted in the discharge of petroleum at the primary outfall. Such a discharge could potentially have impacted underlying soils and groundwater and this sump drain/system therefore represents a potential Recognized Environmental Condition.

7.2.7 Wastewater

Other than stormwater runoff, Dames & Moore observed no evidence of current or prior wastewater activities on the subject property.

7.2.8 Wells

Dames & Moore did not observe wells on the subject property at the time of the site inspection. A nearby well is located on Highland Avenue, installed in association with an investigation of a property to the south. This well is discussed in Section 4.0.

7.2.9 Pits, Ponds, and Lagoons

Dames & Moore did not observe evidence of pits, ponds or lagoons on the subject property.

7.2.10 Asbestos Containing Material

Dames & Moore conducted a visual asbestos survey on the subject property. No suspect asbestos containing materials (ACMs) were observed in the garage or stable. No suspect friable ACMs were observed in the warehouse, although several different types of suspect nonfriable ACMs were identified in the form of vinyl floor tiles. No sampling was conducted.

7.2.11 Other Physical Evidence of Contamination

The only other potential evidence of contamination identified were several areas of heavily stained gravel on the north end of the subject property. In each of these areas, it appeared that petroleum had been dumped, as there were no obvious signs of petroleum sources within the vicinity of the stains. This apparent dumping is considered a Recognized Environmental Condition.

8.0 INTERVIEWS

Dames & Moore interviewed Mr. Bock, whose family owned property from 1972 to 2001. Information from the interview with Mr. Bock is presented in Sections 5.1 and 5.3.

9.0 FINDINGS AND CONCLUSIONS

Dames & Moore conducted a Phase I ESA of Bock Oil Company Property, Hagerstown, Washington County, Maryland (subject property) to evaluate the potential for Recognized Environmental Conditions to exist on the subject property from onsite or offsite activities. Dames & Moore's conclusions are presented below.

9.1 ONSITE RECOGNIZED ENVIRONMENTAL CONDITIONS

The historical use of the subject property as an petroleum storage and distribution facility from the late 1800s through the early 1990s has the potential to have resulted in both chronic and acute releases that could have impacted underlying soil and groundwater. Potential areas of concern related to the petroleum operations include current and former storage tanks, loading/offloading, the lack of a liner in the tank farm, potential leaks and spills, and the drain/sump system. A groundwater sample collected from an adjacent, downgradient well showed evidence of petroleum contamination, which may be attributable to releases from the subject property. Based on this information, the historical use of the subject property as an oil storage and distribution facility is considered a Recognized Environmental Condition.

A number of ASTs and one potential UST remain on the subject property; the amount of petroleum and residues in these tanks is unknown. Releases from these tanks could create a Recognized Environmental Condition. Several areas of apparent petroleum dumping were observed; petroleum impacted soils were observed that may indicate a Recognized Environmental Condition.

The electrical equipment formerly used to power the fuel pumps have the potential to contain PCBs. Releases from this equipment has the potential to create a Recognized Environmental Condition.

Although not classified as Recognized Environmental Condition under the ASTM standard, a limited visual asbestos assessment was conducted. No suspect ACMs were observed in the garage or stable buildings. No suspect friable ACMs were identified in the warehouse, although several suspect nonfriable ACMs were observed. No sampling was conducted.

9.2 OFFSITE RECOGNIZED ENVIRONMENTAL CONDITIONS

Based on the results of the Phase I ESA offsite activities were identified that have the potential to create a Recognized Environmental Condition on the subject property. Historical records indicated potential moderate to heavy industrial operations at the adjacent the railroad facilities to the north and west; portions of the railroad operations appear to be topographically upgradient and may be hydrogeologically upgradient. Therefore, given the apparent potential for releases from the adjacent facilities to migrate onto the subject property, these railroad facilities are considered a potential Recognized Environmental Condition.

9.3 RECOMMENDATIONS

Based on the results of Dames & Moore's Phase I ESA of the subject property, further investigation is recommended. Soils and groundwater from the facility should be sampled and analyzed for TPH, BTEX, and lead. Additional sampling may be warranted near the sump system discharge. Additional analyses may be appropriate for polycyclic aromatic hydrocarbons (PAHs) and heavy metals in association with petroleum sludges. The existing ASTs and USTs should be closed in accordance with Maryland regulations. The various chemical containers observed should be properly characterized and disposed. Soil and/or groundwater samples should be collected from the areas of suspected dumping and analyzed for TPH and metals, at a minimum. In areas near the former pumps' electrical systems, soil and/or wipe samples should be collected and analyzed for PCBs.

Prior to renovation or demolition of the existing structures, a destructive-type asbestos survey should be conducted. The results of the asbestos survey should be used in order to determine the need for asbestos abatement, if any, prior to renovation or demolition activities, and to plan for proper disposal of asbestos identified.

10.0 CREDENTIALS

Curricula vitae for Dames & Moore personnel involved in the preparation of this report are presented in Appendix G.

11.0 REFERENCES

Aerial Photographs:

<u>Date</u>	<u>Source</u>	<u>Frame Numbers</u>
1938	National Archives	AHB-96-92
1952	Air Photographics	Mosaic
1962	Air Photographics	AYL-18
1982	City of Hagerstown Engineers Office	D-4
1997	City of Hagerstown Engineers Office	717-105

Other References:

American Society for Testing and Materials (ASTM). Standard E1527-97, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," June 1997.

VISTA Information Solutions, Inc. (VISTA) Environmental Database Report, Report No: 586201901, dated February 22, 2001.

United States Geological Survey. Topographic Quadrangle, 7.5' Series: Hagerstown, MD, 1963 (photorevised 1985).

SCS, United States Department of Agriculture, Soil Conservation Service, Soil Survey of Washington County, Maryland, 1959.

MDG 1959, Maryland Department of Geology, Mines, and Water Resources, the Physical Features of Washington County, Maryland, 1959.

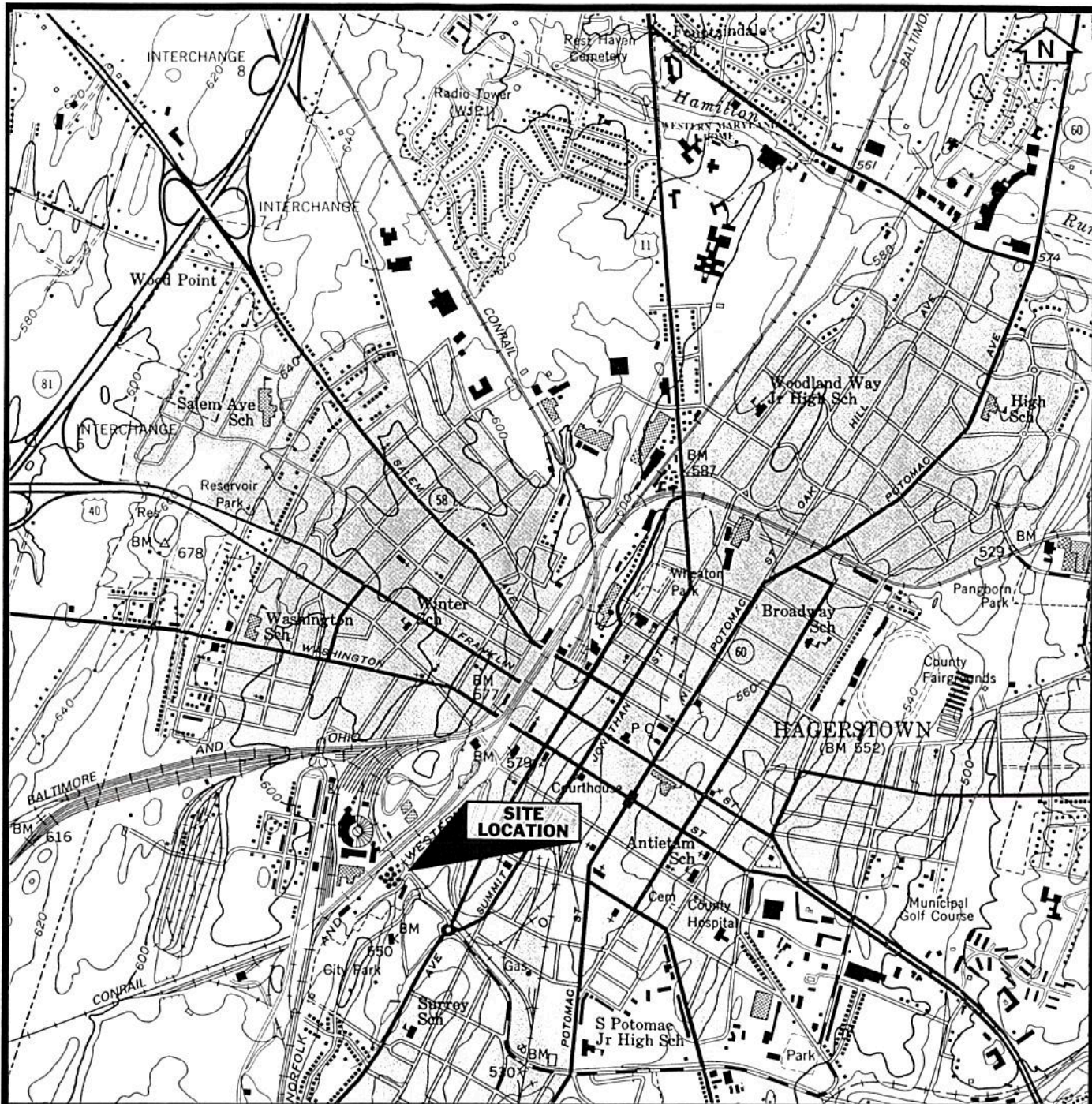
MGS 1991, Maryland Geological Survey, Water Resources of Washington County, 1991.

MGS 1989, Maryland Geological Survey, Groundwater and Surface Water Data for Washington County Maryland, 1989.

Interviews:

Mr. Frank Bock, prior owner, 717-794-2118

Mr. Bruce Johnson, City of Hagerstown Engineer, 301-739-8577



SOURCE: USGS - 7. MINUTE TOPOGRAPHIC QUADRANGLE, HAGERSTOWN, MD, 1953, PHOTOREVISED 1985

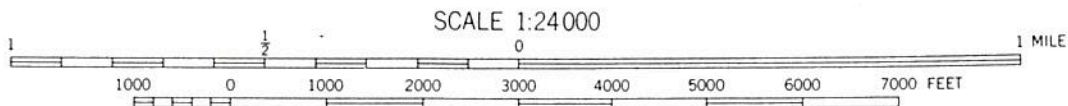


FIGURE 1
SITE LOCATION MAP
BOCK OIL COMPANY
HAGERSTOWN, MARYLAND

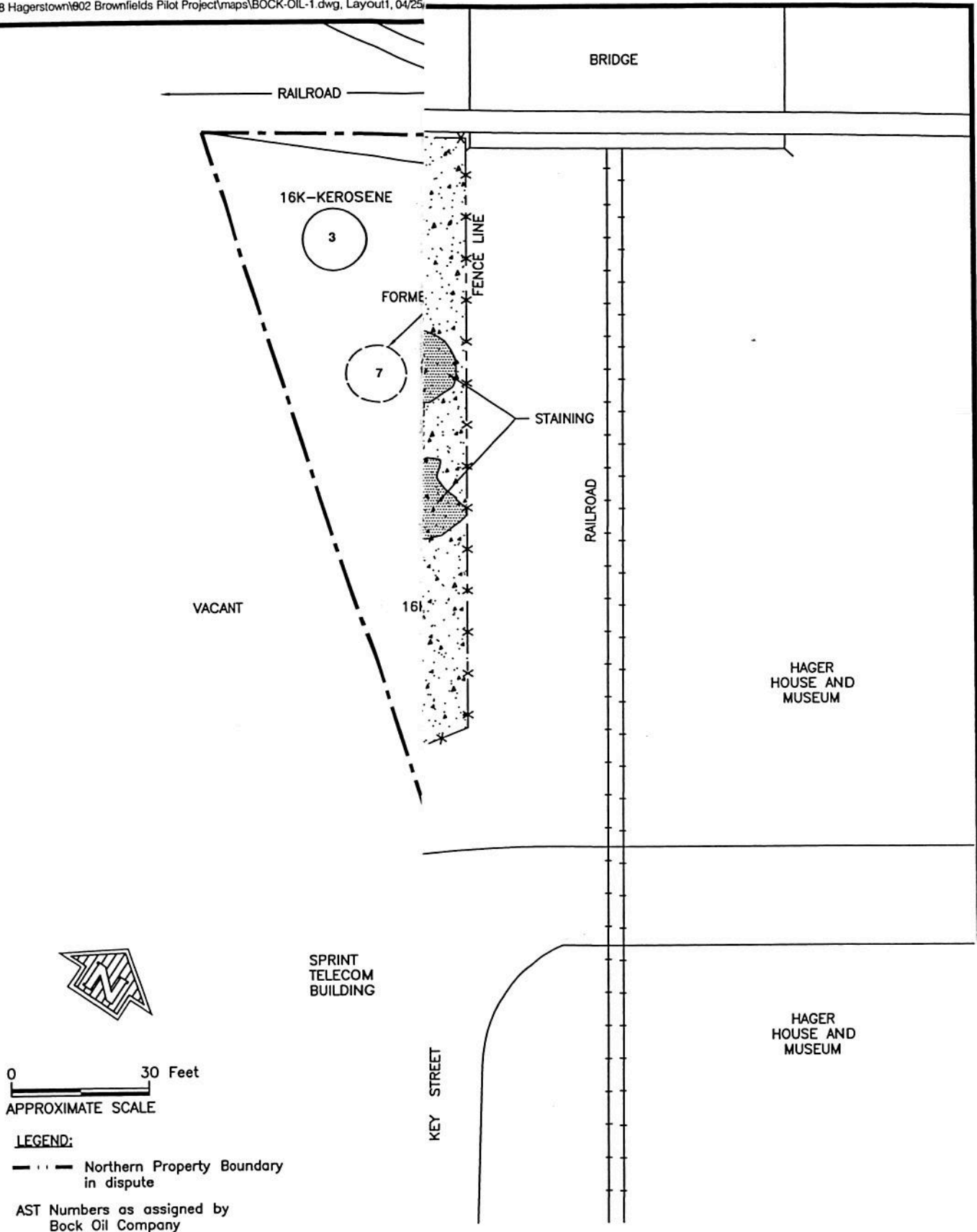


FIGURE 2
SITE PLAN
BOCK OIL COMPANY
HAGERSTOWN, MARYLAND

APPENDIX A

MDE OUTLINE FOR PHASE I INVESTIGATION

APPENDIX I

PHASE I INVESTIGATION

**TRANSMITTAL LETTER
COVER PAGE
TABLE OF CONTENTS**

EXECUTIVE SUMMARY

Provides a brief property overview, and summarizes the findings and conclusions of the Phase I investigation.

I. INTRODUCTION

Summarizes the investigation's purpose and scope, special terms and conditions (if applicable), limitations and exceptions, methodology, and limiting conditions (if applicable).

II. PROPERTY DESCRIPTION

A. Property location and legal description

Provides the property's street address (including: township, municipality, and county), USGS quadrant(s), latitude and longitude, and tax parcel number.

B. Property and vicinity characteristics

Briefly describes the zoning and land uses (e.g., commercial, agricultural, vacant industrial, etc.) of the property and adjoining properties.

C. Property hydrology

Briefly describes the property's topography, surface drainage pathways (including man-made channels and drains) and receiving surface water bodies (e.g., wetlands, seeps, streams, rivers, lakes, ponds). Local surface water uses (e.g., reservoir, recreational, irrigation, commercial) are discussed.

D. Property hydrogeology

Describes the property's soil conditions, geology (including fill materials), depth to groundwater, groundwater flow direction, and potential subsurface contaminant

migration pathways. Regional geologic and hydrogeologic conditions and local groundwater uses (e.g., industrial supply, municipal supply, residential supply, etc.) are also described.

E. Current use of adjoining properties

Describes the uses of the properties that are adjacent to, or directly across the street from, the property.

III. STANDARD ENVIRONMENTAL RECORDS REVIEW

Summarizes the standard Federal and State environmental records, and any additional environmental records, reviewed for the investigation. Discusses the findings of the environmental records review.

IV. PREVIOUS PROPERTY INVESTIGATIONS

Chronologically summarizes all previous environmental property investigations. The summary is supplemented by a property plan, showing the sampling locations used during the previous investigations, and tabulated sampling results.

V. CURRENT AND PAST USES OF THE PROPERTY

Summarizes the standard and supplementary historical sources used to determine the property's history from the present back to the property's first developed use or 1940, whichever is earlier. Discusses the findings of the historical sources review. The discussion includes, but is not limited to, the following information:

- Name(s), address(es), telephone number(s) of the property's past and present owner(s). For each owner, identifies the length of their ownership and describes their use of the property.
- Name(s), address(es), telephone number(s) of the property's past and present occupants. For each occupant, identifies the length of their occupancy and describes their use of the property.
- A table summarizing property ownership, occupancy, and land use through time.

VI. CURRENT AND PAST USES OF ADJOINING PROPERTIES

Summarizes the use history (starting from the present) of the properties adjacent to, or directly across the street from, the property as identified by the property-history research for Section V.

VII. PROPERTY RECONNAISSANCE

Summarizes the methodology, limitations, and findings of the property reconnaissance, and discusses the interior and exterior conditions observed at the property and exterior conditions observed on the adjoining properties.

VIII. INTERVIEWS

Summarizes the property information obtained during interviews with the property owner, key property manager, government officials, and others (if applicable).

IX. FINDINGS AND CONCLUSIONS

Summarizes the findings of the Phase I investigation and provides the environmental professional's conclusions regarding the presence of Recognized Environmental Conditions (as defined in ASTM E 1527-94, 3.3.28) at the property.

X. CREDENTIALS

Provides the names and qualifications of the individuals that performed the Phase I investigation.

XI. REFERENCES

Lists the references responsible for the Phase I investigation.

LIST OF TABLES

- Property history summary table

LIST OF FIGURES

- Property location plan
- Property plan
 - Shows prominent and relevant property features, such as buildings, retaining walls, tanks, piles, rail spurs, surface water bodies, property boundaries. This figure has a "north arrow", scale bar, and clearly shows the locations of all Recognized Environmental Conditions identified by the Phase I investigation.
- Property plan showing previous sampling locations (if applicable)
- Others as necessary

APPENDICES

- Photograph log
- Database search report
- Previous environmental investigations
- Other supporting documentation as necessary

This outline of requirements is the minimum information required. The Department reserves its right to require additional information necessary to ensure, to its satisfaction, that the assessment has adequately investigated all areas of contamination and potential areas of contamination.

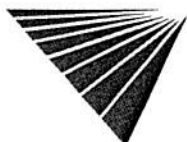
APPENDIX B

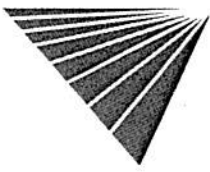
VISTA ENVIRONMENTAL DATABASE REPORT

SITE ASSESSMENT REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Hagerstown - Bo Bock Oil Company 102 Key Street Hagerstown, MD 21740 Latitude/Longitude: (39.638794, 77.730750)	Dana Harris URS/Dames Moore 7101 Wisconsin Ave Bethesda, MD 20814

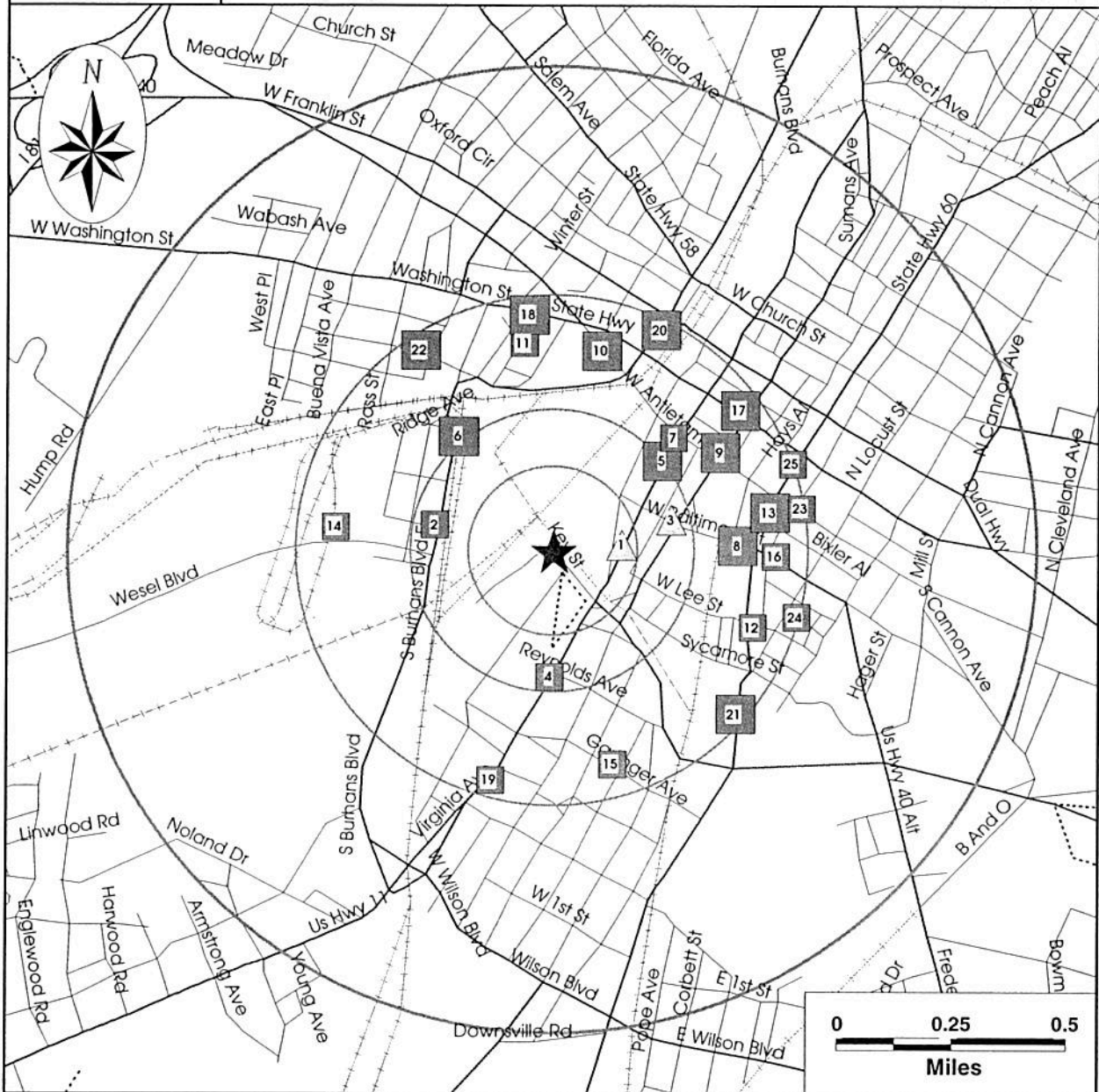
Site Distribution Summary			within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile
Agency / Database - Type of Records						
A) Databases searched to 1 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS	RCRA Corrective Actions (w/o TSD)	0	0	0	0
US EPA	TSD	RCRA Corrective Actions and CORRACTS associated TSD	0	0	0	0
B) Databases searched to 1/2 mile:						
STATE	SCL	State equivalent CERCLIS list	0	0	1	-
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	2	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE	LUST	Leaking Underground Storage Tanks	0	3	30	-
STATE	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	1	-
C) Databases searched to 1/4 mile:						
STATE	UST	Registered underground storage tanks	1	2	-	-
D) Databases searched to 1/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	LG GEN	RCRA registered large generators of hazardous waste	0	-	-	-
US EPA	SM GEN	RCRA registered small generators of hazardous waste	0	-	-	-
STATE	SPILLS	State spills list	0	-	-	-





SITE ASSESSMENT REPORT

Map of Sites within 1 Mile



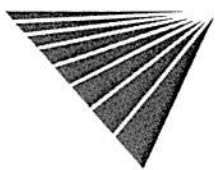
Subject Site	Category:	A	B	C	D
		1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Databases Searched to:				
	Single Sites				
	Multiple Sites	NPL, SPL, CORRACTS (TSD)	CERCLIS, NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS
	Highways and Major Roads				
	Roads				
	Railroads				
	Rivers or Water Bodies				
	Utilities				

For More Information Call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403

Report ID: 586201901

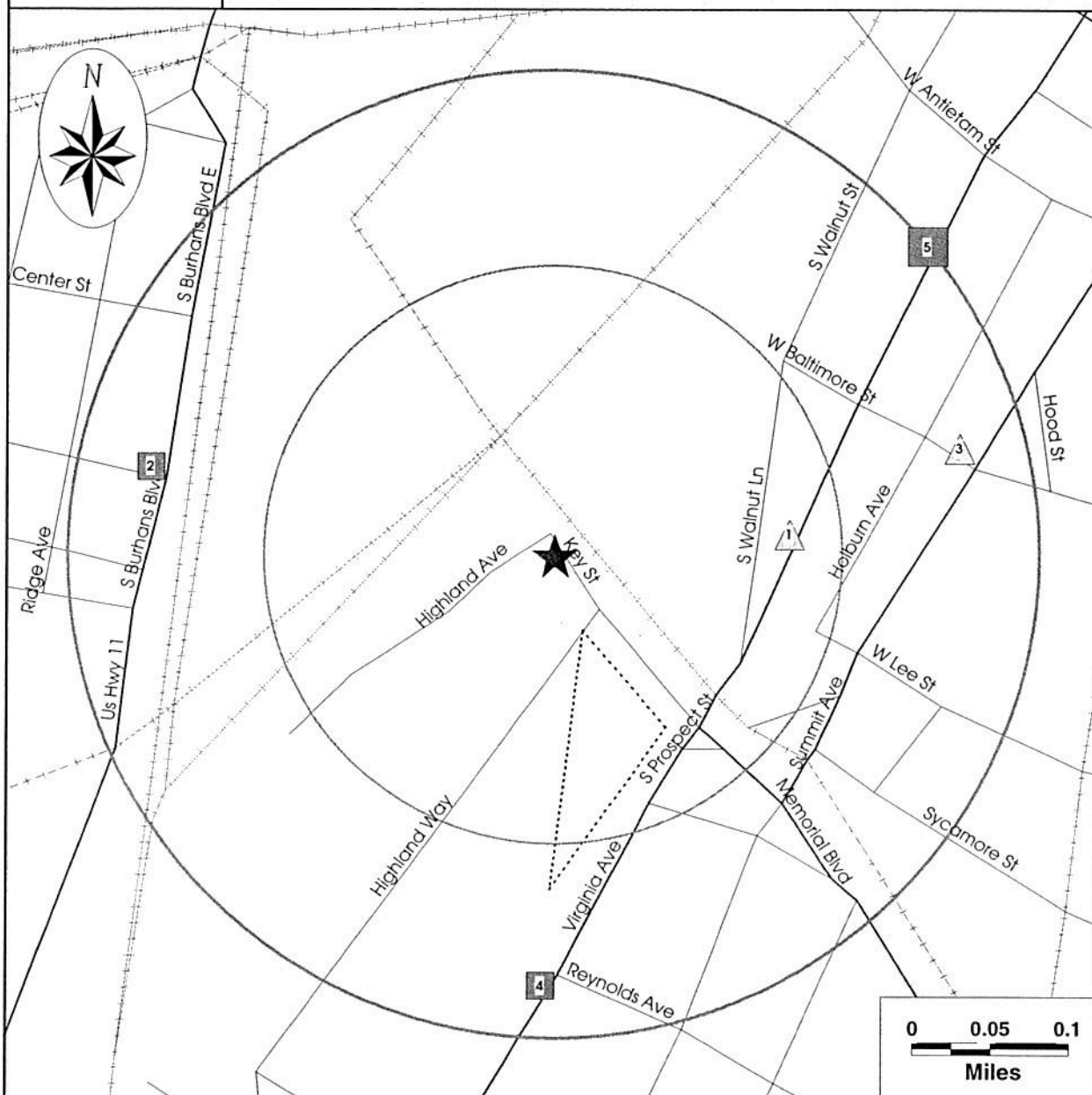
Date of Report: February 22, 2001

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SITE ASSESSMENT REPORT

Map of Sites within 1/4 Mile



0 0.05 0.1
Miles

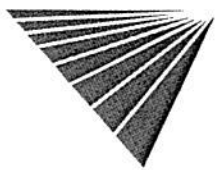
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
Highways and Major Roads Roads Railroads Rivers or Water Bodies Utilities		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

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Report ID: 586201901

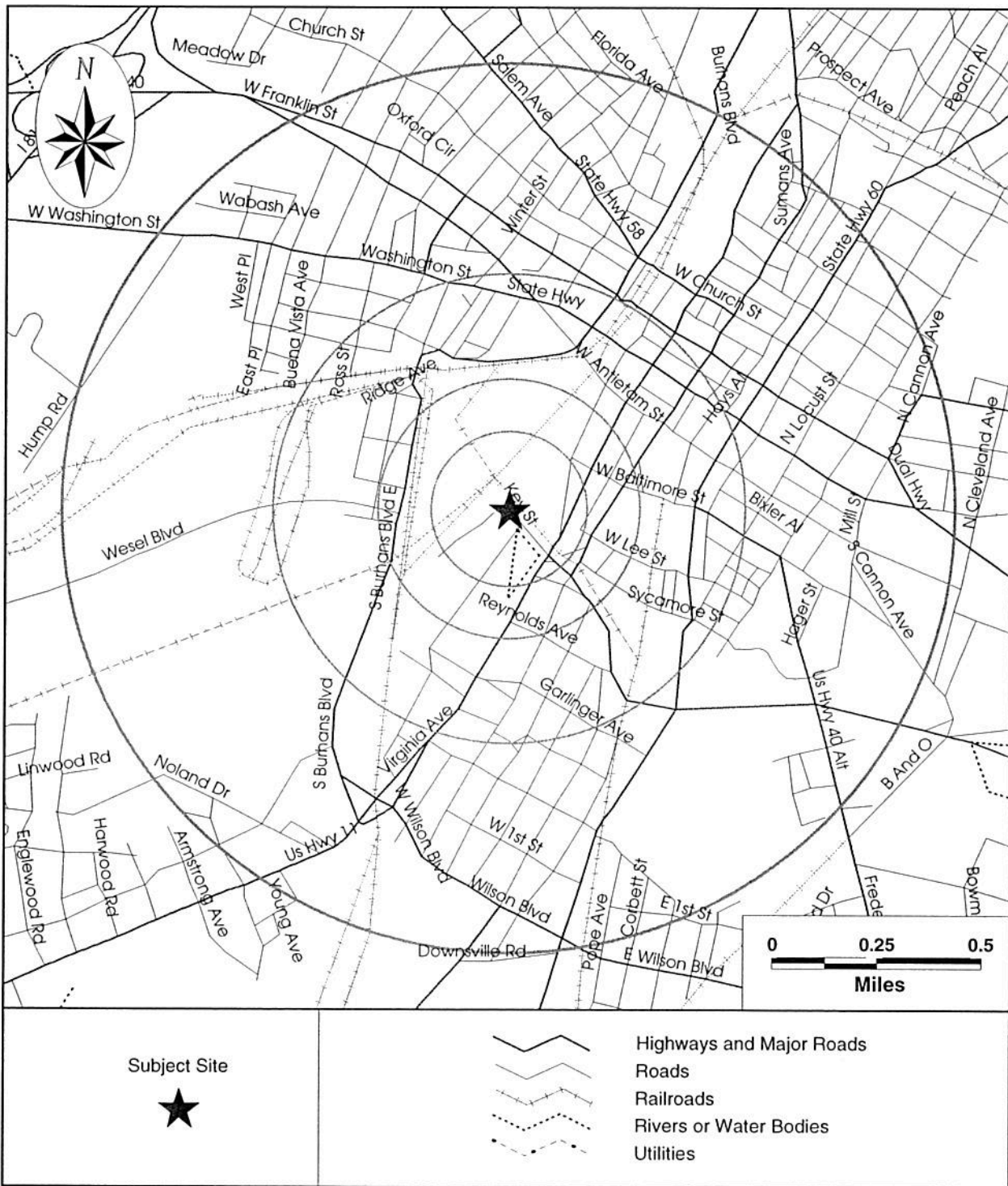
Date of Report: February 22, 2001

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SITE ASSESSMENT REPORT

Street Map



SITE ASSESSMENT REPORT

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID DISTANCE DIRECTION	A		B				C	D					
			NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
1	GARLOCK MANOR, L.L.C. 241 S PROSPECT ST HAGERSTOWN, MD 21740	65492132 0.09 MI E									X				

MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	VISTA ID DISTANCE DIRECTION	A		B				C	D					
			NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
2	KENNER RESIDENCE 301 CLAIRE STREET HAGERSTOWN, MD 21740	65714793 0.20 MI W							X						
3	DWYER CENTER 112 W BALTIMORE ST HAGERSTOWN, MD 21740	64999460 0.21 MI E								X					
4	HAGERSTOWN CITY PARK 501 VIRGINIA AVE. HAGERSTOWN, MD 21740	65719461 0.22 MI S							X						
5	E. MASON HENDRICKSON 137 S PROSPECT ST HAGERSTOWN, MD 21740	65492558 0.25 MI NE								X					
5	HENDRICKSON PROPERTY 137 S. PROSPECT ST. HAGERSTOWN, MD 21740	65721565 0.25 MI NE							X						

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A		B				C	D					
			NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
6	CSX TRANSP INC 300 S BURHANS BLVD HAGERSTOWN, MD 21740	1650670 0.26 MI NW								X				•	



X = search criteria; • = tag-along (beyond search criteria).

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MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A		B				C	D					
			NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
6	CSX TRANSPORTATION 300 S. BURHANS BLVD. HAGERSTOWN, MD 21740	65709147 0.26 MI NW							X						
7	ST. JOHNS EPISCOPAL CHURCH 101 S PROSPECT HAGERSTOWN, MD 21740	65092161 0.30 MI NE							X						
8	BESTER FLOWER SHOP 40 BALTIMORE ST HAGERSTOWN, MD 21740	65065013 0.32 MI E							X						
8	POTOMAC TOWERS 11 W. BALTIMORE ST. HAGERSTOWN, MD 21740	65720948 0.36 MI E							X						
8	POTOMAC TOWERS 11 W.BALTIMORE ST HAGERSTOWN, MD 21740	65715031 0.36 MI E							X						
9	THE HERALD MAIL CO 100 SUMMIT AVENUE HAGERSTOWN, MD 21740	62276475 0.35 MI E							X						
9	BELL ATLANTIC 100 W. ANTIETAM ST HAGERSTOWN, MD 21740	65714560 0.36 MI NE							X						
9	C P TELEPHONE 33 SUMMIT AVE HAGERSTOWN, MD 21740	65071284 0.39 MI NE							X						
10	449 ANTIETAM DRIVE HAGERSTOWN, MD 21742	6522989 0.39 MI N								X					
10	MARYLAND METALS SECURITY 449 ANTIETAM DRIVE HAGERSTOWN, MD 21740	65711708 0.39 MI N							X						
11	MAGNUS CO INC ELIZABETH ST HAGERSTOWN, MD 21740	254983 0.40 MI N					X								
12	WILES RESIDENCE 23 E. LEE ST. HAGERSTOWN, MD 21740	65717943 0.41 MI E							X						
13	BAGS BY MIMI 140 S. POTOMAC ST. HAGERSTOWN, MD 21740	65708978 0.41 MI E							X						
13	SOLIDAY OIL CO 105-107 S.POTOMAC ST HAGERSTOWN, MD 21740	65713267 0.43 MI E							X						
14	KOPPERS CO HAGERSTOWN PLT 100 CLAIR ST HAGERSTOWN, MD 21740	232060 0.42 MI W				X	X								
15	PETER BAUGH RESIDENCE 320 GARLINGER ST. HAGERSTOWN, MD 21740	65716221 0.43 MI S							X						



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MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A			B				C	D				
			NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
16	ALVIN MASSEY PROPERTY 40 E. BALTIMORE ST. HAGERSTOWN, MD 21740	65718359 0.43 MI E							X						
17	CITY OF HAGERSTOWN CITY HALL HAGERSTOWN, MD 21740	62076660 0.44 MI NE							X						
17	FRIDINGER/RITCHIE COMPANY 132 W WASHINGTON ST HAGERSTOWN, MD 21740	65079366 0.44 MI NE							X						
17	MEINEKE MUFFLERS/TOM'S GULF CENTER 37 N. JONATHAN STREET HAGERSTOWN, MD 21740	65712053 0.48 MI NE							X						
18	TURNER TAXI SERVICE 655 W. WASHINGTON ST HAGERSTOWN, MD 21740	65714335 0.46 MI N							X						
18	TURNER TAXI SERVICE 655 W. WASHINGTON STREET HAGERSTOWN, MD 21740	4087877 0.46 MI N							X						
19	SNYDER SERVICE 724 VIRGINIA AVE. HAGERSTOWN, MD 21740	65718194 0.46 MI S							X						
20	HAGERSTOWN CITY POLICE 50 N. BURHANS BLVD. HAGERSTOWN, MD 21740	65719340 0.46 MI NE							X						
20	BIG RED 90 BURNHAM BLVD HAGERSTOWN, MD 21740	65064483 0.49 MI NE							X						
21	CASSIDY TRUCKING INC. 441 S. POTOMAC ST. HAGERSTOWN, MD 21740	65721511 0.46 MI SE							X						
21	INNER FAITH HOUSING 501 S.POTOMAC ST HAGERSTOWN, MD 21740	65715107 0.49 MI SE							X						
22	GOWEN MOTOR SERVICES 810 LANVALE ST. HAGERSTOWN, MD 21740	65720799 0.47 MI NW							X						
22	JEFFREY WHITE PROPERTY/GOWEN MOTOR SERVI 810 LANVALE ST. HAGERSTOWN, MD 21740	65717362 0.47 MI NW							X						
23	CAUFMAN FUNERAL HOME 40 E ANTIETAM ST HAGERSTOWN, MD 21740	65072113 0.49 MI E							X						
24	COMM. PROPERTY 121 BESTER ST HAGERSTOWN, MD 21740	65073879 0.49 MI E							X						
25	MARYLAND THEATRE 21 S. POTOMAC ST. HAGERSTOWN, MD 21740	65717995 0.50 MI E							X						



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UNMAPPED SITES	VISTA ID	A			B			C	D					
		NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
HAGERSTOWN LIGHT HEAT CO SOUTH LOCUST ST HAGERSTOWN, MD 21740	483306				X	X								
BOCK OIL CO. HIGHLAND AVE HAGERSTOWN, MD 21740	65070374							X						
SHIFLER LAUNDRY NORTH POTOMAC AVE HAGERSTOWN, MD 21740	65712915							X						
FREDERICK ST EXXON/EWING OIL FREDERICK ST HAGERSTOWN, MD 21740	65079304							X						
CHICK SEAFOOD RESTAURANT SUMMIT AVENUE HAGERSTOWN, MD 21740	65711980							X						
DOMINO'S PIZZA CHURCH STREET HAGERSTOWN, MD 21740	65710458							X						
A C T FREDERICK ST HAGERSTOWN, MD 21740	65069612							X						
PARK CIRCLE RESTAURANT SUMMIT AVENUE HAGERSTOWN, MD 21740	65711979							X						
HAGERSTOWN LIGHT HEAT CO WEST WASHINGTON ST HAGERSTOWN, MD 21740	184597				X	X								
DUTCH'S EXXON W. WASHINGTON ST HAGERSTOWN, MD 21740	65713489							X						
WA CO REGIONAL AIRPORT OFF RT 11 HAGERSTOWN, MD 21742	65094293							X						
WASHINGTON CO. DEPT. OF SOLID WASTE AMES SHOPPING CENTER HAGERSTOWN, MD 21740	6522985								X					
VIRGINIA AVE CHURCH OF GOD 17036 VIRGINIA AVE HAGERSTOWN, MD 21740	65094238							X						
INTERSECTION INTERSECTION OF WATERY LN. MISTY MEADO HAGERSTOWN, MD 0	65714930							X						
DRIVER ATTENDANCE/HARDELL FUEL CO. HAGERSTOWN, MD 21740	502780319							X						
HAGERSTOWN UNIV. COLLEGE PUMPING STA. #8 EDGEWOOD DR. HAGERSTOWN, MD 0	65720232							X						



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UNMAPPED SITES	VISTA ID	A			B				C	D				
		NPL	CORRACTS	TSD CORRACTS	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	ERNS	LG GEN	SM GEN	SPILLS
PARK PLACE APTS. HAGERSTOWN, MD 21740	502780209							X						
STEWART'S EXXON SUMMITT AVE HAGERSTOWN, MD 21740	65092479							X						
ST. JAMES APARTMENTS HAGERSTOWN, MD 21740	502780264							X						
SHIFLER EQUIPMENT CO. 1648 NATIONAL PIKE HAGERSTOWN, MD 21740	65091627							X						
ANTIETAM EQUIPMENT CORPORATION 5 MILES E ON SR 64 HAGERSTOWN, MD 21740	65490396								X					
RAMPF MOLDS 10 WESTERN MD PARKWAY HAGERSTOWN, MD 0	65090151							X						
SHEETZ INC. N POTAMAC ST HAGERSTOWN, MD 21740	65091435							X						
CITIZEN'S COMPLAINT END OF CAMBRIDGE DRIVE HAGERSTOWN, MD 21742	65714436							X						
WA. COUNTY COMMISSIONERS/GROVE HANGER 18227 AIRPARK DR. HAGERSTOWN, MD 21740	65716371							X						
WASH.CO. WATER SEWER DEPT./FARM LANE P OFF FARM LANE HAGERSTOWN, MD 21740	65716710							X						
WASH.CO.WATER SEWER DEPT./RT. 11 PUMPI RT. 11 HAGERSTOWN, MD 21742	65716713							X						
REYNOLDS REYNOLDS RT 11 MIDDLEBURG PIKE HAGERSTOWN, MD 21740	65090368							X	X					
JOHN SHRADER RESIDENCE 1508 FAIRVIEW RD HAGERSTOWN, MD 21740	65084180							X						
CSX ROUNDHOUSE BURHAMS BLVD. HAGERSTOWN, MD 21740	65711443							X						
OLD MT. AETNA STORE RT 664 MT AETNA RD. HAGERSTOWN, MD 21742	65709932							X						
DURBINS AUTO S MULBERRY ST HAGERSTOWN, MD 21722	65076609							X						



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